NASA Contractor Report 3115

Bumblebee Program - Aerodynamic Data

Part II - Flow Fields at Mach Number 2.0

G. A. Barnes and L. L. Cronvich

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G. A. Barnes and L. L. Cronvich
The Johns Hopkins University
Laurel, Maryland

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CONTENTS

SUMMARY

This report provides available flow field data which can be used in validating theoretical procedures for computing flow fields around supersonic missiles. Tabulated test data are given which define the flow field about a conical-nosed cylindrical body in a crossflow plane corresponding to a likely tail location. The data were obtained at a Mach number of 2.0 for an angle of attack range of 0 to 23 degrees. The data define the flow field for cases both with and without a forward wing present.

INTRODUCTION

There are many current efforts to develop theoretical and/or empirical methods to define the complex flow field around missile bodies at relatively high angles of attack. The purpose of this Part II report is to provide data, based on experimental results, that define the flow field around a conical-nosed, cylindrical body at M = 2.0 in a crossflow plane that is a likely location for the tail surface of a missile. Data are provided that define this flow field with and without a wing surface located upstream of the crossflow plane. This experimental definition can then, hopefully, be used by the theoretician as a tool in the development and verification of computational approaches to the definition of this flow field.

This report is the second part of a four-part series published under the general title:

"Bumblebee Program - Aerodynamic Data".

Part I discusses the purpose of this effort and how the information in the other three reports is related.

Part III presents the Mach number effect (M = 1.5 and 2.0) on pressure fields only since complete flow field data are available in the Bumblebee Program at M = 2.0 only. This comparison is at a missile body station where a wing leading edge is likely to be located.

Part IV presents wing panel normal force and center of pressure data for three rectangular wings of varying aspect ratio (span) at Mach numbers of 1.5 and 2.0.

NOMENCLATURE FOR TABULATED DATA OF APPENDIX A (See Fig. 2)

y	radial distance from body surface	(inches)
ϵ	local flow inclination angle referred to centerline of the body	(degrees)
ϕ_f	radial flow angle referred to y measured in plane perpendicular to body centerline; positive is clockwise looking upstream (ϕ_f = 0 when flow is along y toward body)	(degrees)
M_l	local Mach number	
α_f, β_f	components of ϵ in tangential and radial directions, respectively	(degrees)
$p_l/p_{t,o}$	ratio of local static pressure to free stream total pressure	
$p_{t,l}/p_{t,o}$	ratio of local total pressure to free stream total pressure	
α_i	indicated angle of attack in the vertical plane referred to tunnel centerline; nose up is positive	(degrees)
θ	location angle for y; counterclockwise is positive looking upstream (θ = 0 when y is vertically below body)	(degrees)
ϕ	body roll attitude; positive is clockwise looking upstream (ϕ = 0 when wings are horizontal and vertical)	(degrees)

DISCUSSION

This Part II report provides data at M = 2.0 that can be used to define the complex flow field about conical-nosed, cylindrical missile body alone and body-wing configurations at one axial body station two chord lengths downstream of the wing trailing edge (Fig. 1). The complexity of this flow field at the higher angles of attack is exemplified in Figs. 4 and 5 at α = 20° for a body-wing configuration. These data plots will be discussed subsequently.

The tabulated data in Appendix A will provide the necessary tool needed to develop and verify theoretical and empirical computational methods for defining these complex flow fields.

Source of Data

Two sets of tabulated data are presented in Appendix A, which describe the flow field at station ③ of the model described in Fig. 1. These data were reproduced from portions of the wind-tunnel data report, OAL 289-14, -18, -19, "Survey of the Flow Field Around a Generalized Missile Model at Mach Number 2.00," dated April 19, 1956. [redacted] The first set of runs gives local static and total pressure, Mach number, and flow angularity for an angle of attack range of 0° to 23° for the body alone (without wings); the second set gives similar data in the presence of fixed wings located circumferentially as sketched in the Remarks column of the Test Log. Thus one can, by comparison, determine the effects of the wing downwash on the flow fields at station ③, which corresponds to a likely tail location.

General Comments on Data

Some notes concerning the tabulated data in Appendix A follow:

- Pressures were measured in a plane normal to the body centerline at station ③ for the B_{14} and B_5W_4 configurations (Fig. 1).
- The maximum error in the measured pitot pressure ratio is given as:

$$p_t'/p_{t_o} = \pm 0.0025$$

Note: This pressure ratio was used as an input to compute the local flow parameters given in Appendix A. For example:

$$p_{t,1}/p_{t,o} = (p_t'/p_{t,o})(p_t/p_t')_{M_1}$$

where $(p_t/p_t')_{M_1}$ is known once M_1 has been computed from appropriate test data.

- A general statement is made in the OAL wind tunnel test reports that at high α on the leeward side of the body, some vibration of the pressure probes occurred. This statement implies that the data user should exercise discretion when interpreting data in these areas.

It should be noted that all data given in Appendix A are presented as a function of wind tunnel indicated (uncorrected) angle of attack, α_i. Corrected values of angle of attack, α_c, which include effects due to model support system deflection are given in the following table. These corrected values were obtained from the Stability and Control portions of the Generalized Missile Study wind tunnel tests.

α_i (degrees)	α_c (degrees)	
	B_{14}	B_5W_4
4	4.12	4.30
8	8.28	8.65
12	12.53	13.05
16	16.85	17.45
20	21.17	21.86
23	24.42	25.21

Examples

In order to assist the user of the data given in Appendix A, the following examples are given. These data were used in the preparation of References 1 and 2.

An illustration of contours of local total pressure ratio and local flow inclination is given in Fig. 3 which was reproduced from Reference 1.

In Reference 1, the local total pressure ratio is defined as H_1/H_o rather than as $p_{t,1}/p_{t,o}$ as given in the tabulated data, and data are plotted versus vertical and horizontal distance from the body axis measured in body radii (a = 0.685 inches), denoted as y/a and x/a, respectively. Note how these total pressure ratio data are used to determine the location of a vortex core.

A representative $\theta = 120°$ line has been drawn on this plot. Refer now to the tabulated flow field data in Appendix A and the checked data sets on pages ~~66~~ 33 and ~~#~~ 40 for $\alpha_i = 20°$. These are the $p_{t,1}/p_{t,o}$ (or H_1/H_o) and ϵ data plotted along the $\theta = 120°$ line. Data for the two most outboard points have not been plotted in the ϵ-plot.

See errata

A second illustration of a much more complex local flow contour is given in Figs. 4 and 5 reproduced from Reference 2 for the body-wing configuration as shown in these Figures. Again a representative $\theta = 120°$ line has been drawn on these plots.

The flow inclination data along the $\theta = 120°$ line in Fig. 4 are given by the checked data set on page ~~165~~ 92 of the tabulated data in Appendix A.

See errata

The "total pressure ratio" data given in Fig. 5 are the measured pitot pressure ratio data, not the local $p_{t,1}/p_{t,o}$ values as given on p. ~~163~~ 92 of the enclosed tabulated data. These pitot pressure ratios were used to obtain the local total pressure ratios. Thus the contours of Fig. 5 cannot be compared with the contours of Fig. 3 in order to evaluate the effects of wings. Instead the computed flow field data from Appendix A for the body-wing configuration should be plotted. Note once again how a total pressure is used to locate the vortex cores.

See errata

CONCLUDING REMARKS

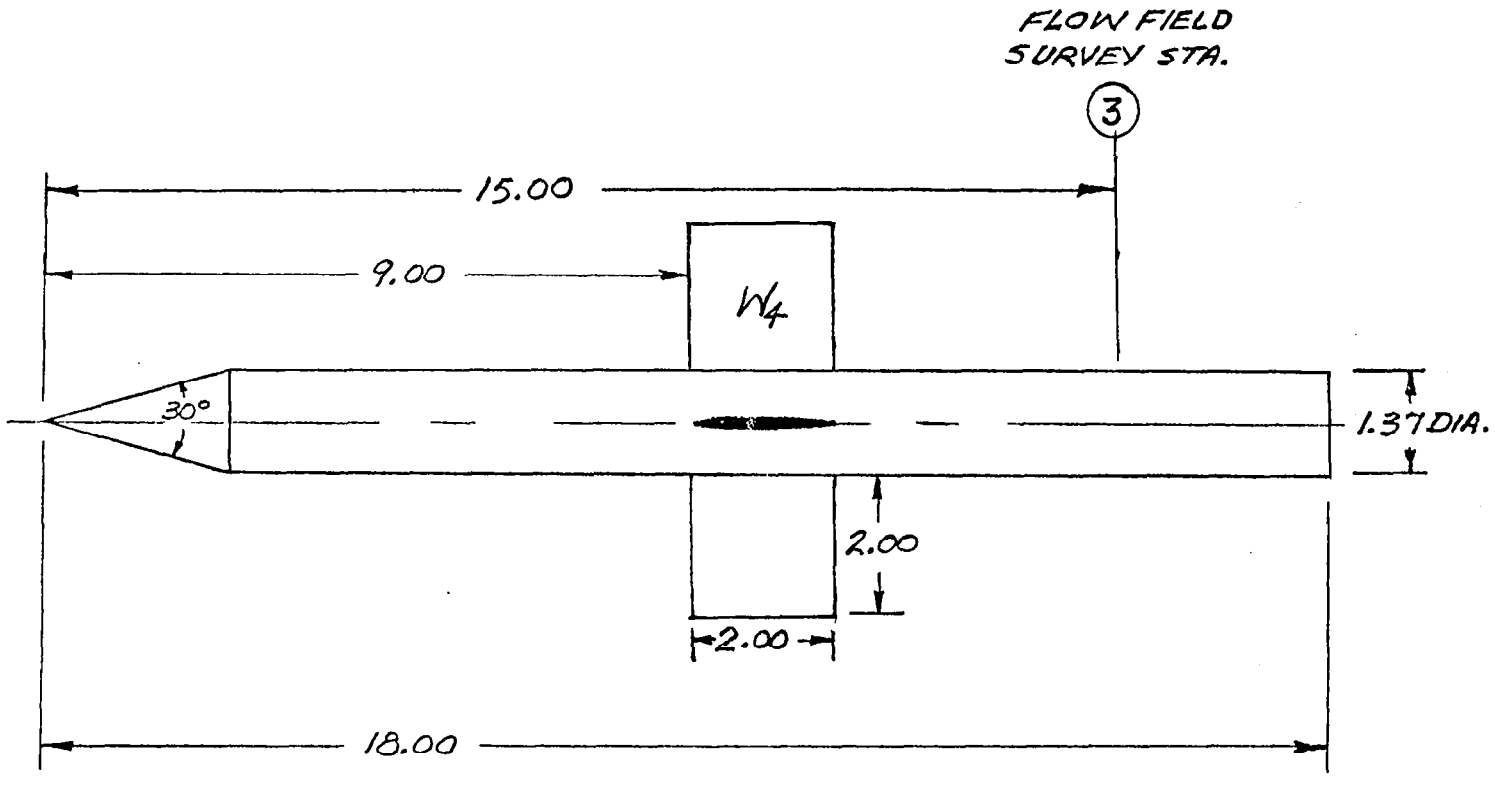
In summary, Appendix A provides date at one Mach number (M = 2.0) giving the effect of angle of attack and the effect of fixed wings in various orientations on the flow field parameters at a representative tail location. Additional data defining the Mach number effect on a flow field by means of pressure fields only, and data defining wing normal force and center of pressure are given in Parts III and IV, respectively, of this report series.

REFERENCES

1. APL/JHU CM-867, "Investigation of Normal-Force Distributions and Wake Vortex Characteristics of Bodies of Revolution at Supersonic Speeds," J. F. Mello, McDonnell Aircraft Corp., 2 April 1956.

2. AGM-23, Memo. No. 6986, "Preliminary Results and Analyses of the GMS Wing-Body Flow Field Survey Tests (OAL Test 289-19, M = 2.0)," J. R. Hinchey, McDonnell Aircraft Corp., 26 April 1956.

PRESSURE SURVEY MODEL



B_{14} - BODY ALONE

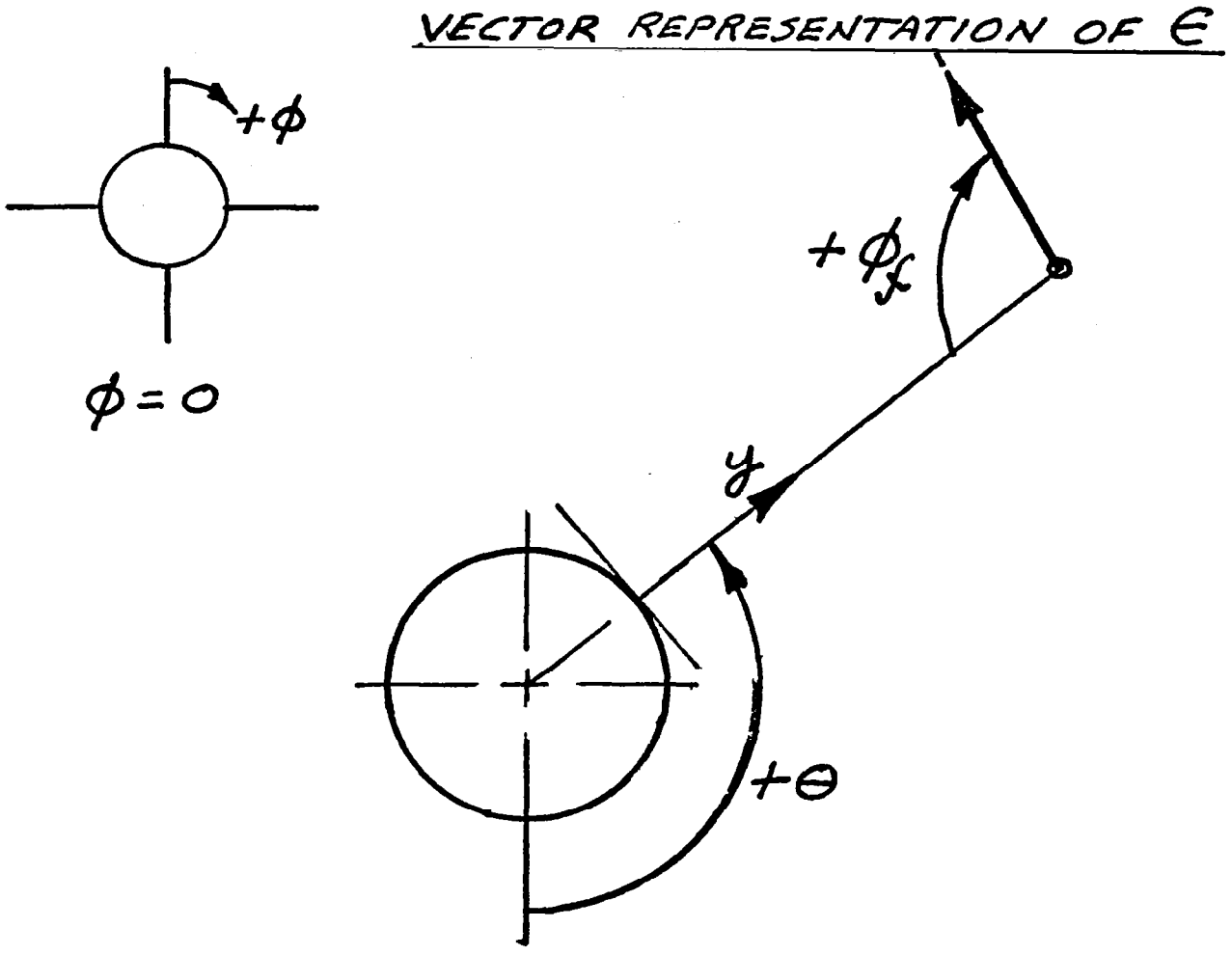
B_5W_4 - BODY-WING

NOTES:

1. STA. (3) - LOCATION OF PRESSURE ORIFICES.
2. DIMENSIONS IN INCHES.
3. WING THICKNESS RATIO = 10%.
4. BICONVEX AIRFOIL

FIG. 1

LOCATION PARAMETERS



LOOKING UPSTREAM

(IN PLANE NORMAL TO BODY ℄)

FIG. 2

EXPERIMENTAL TOTAL PRESSURE RATIO CONTOURS AND LOCAL FLOW INCLINATION

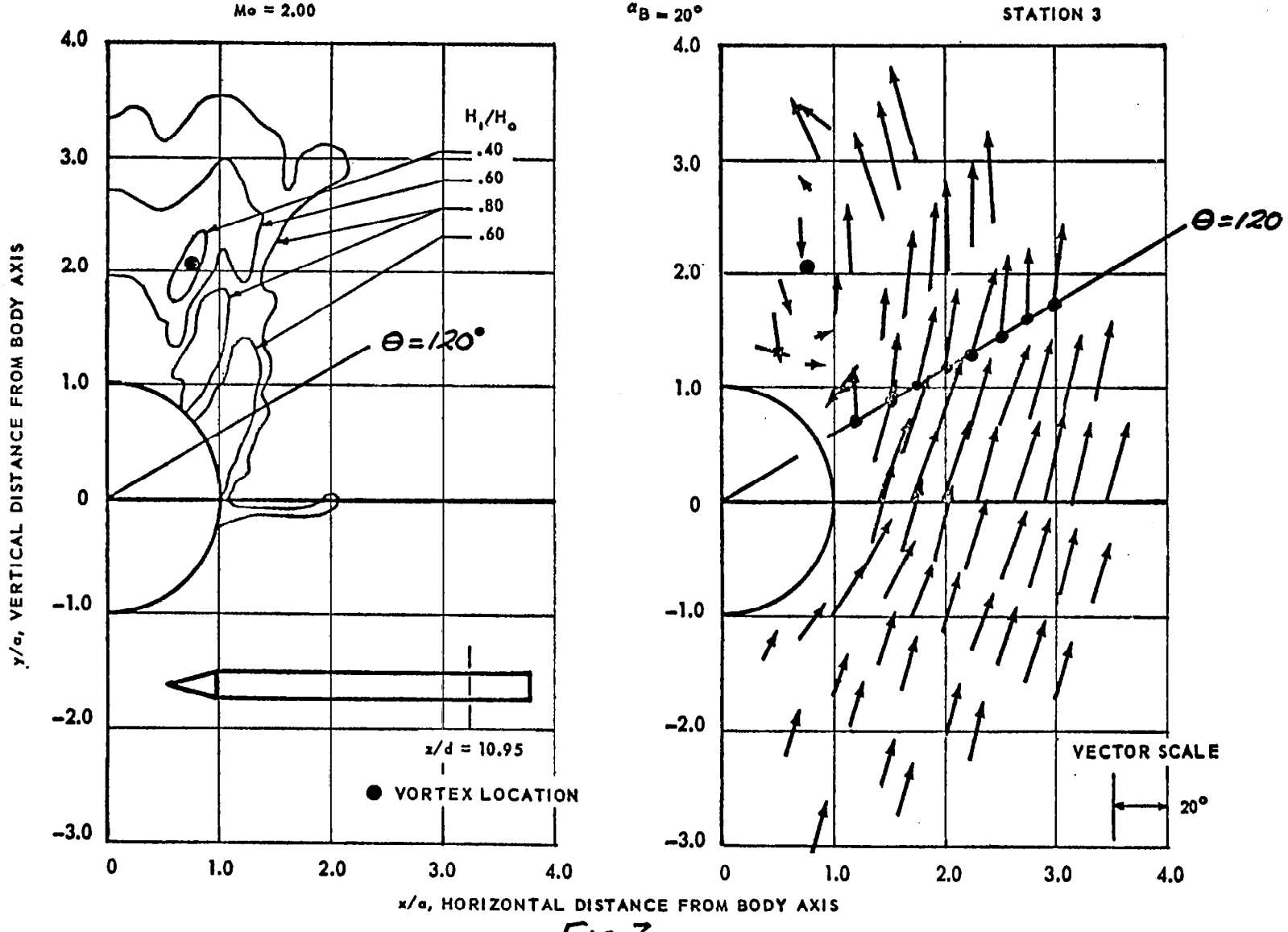


FIG. 3

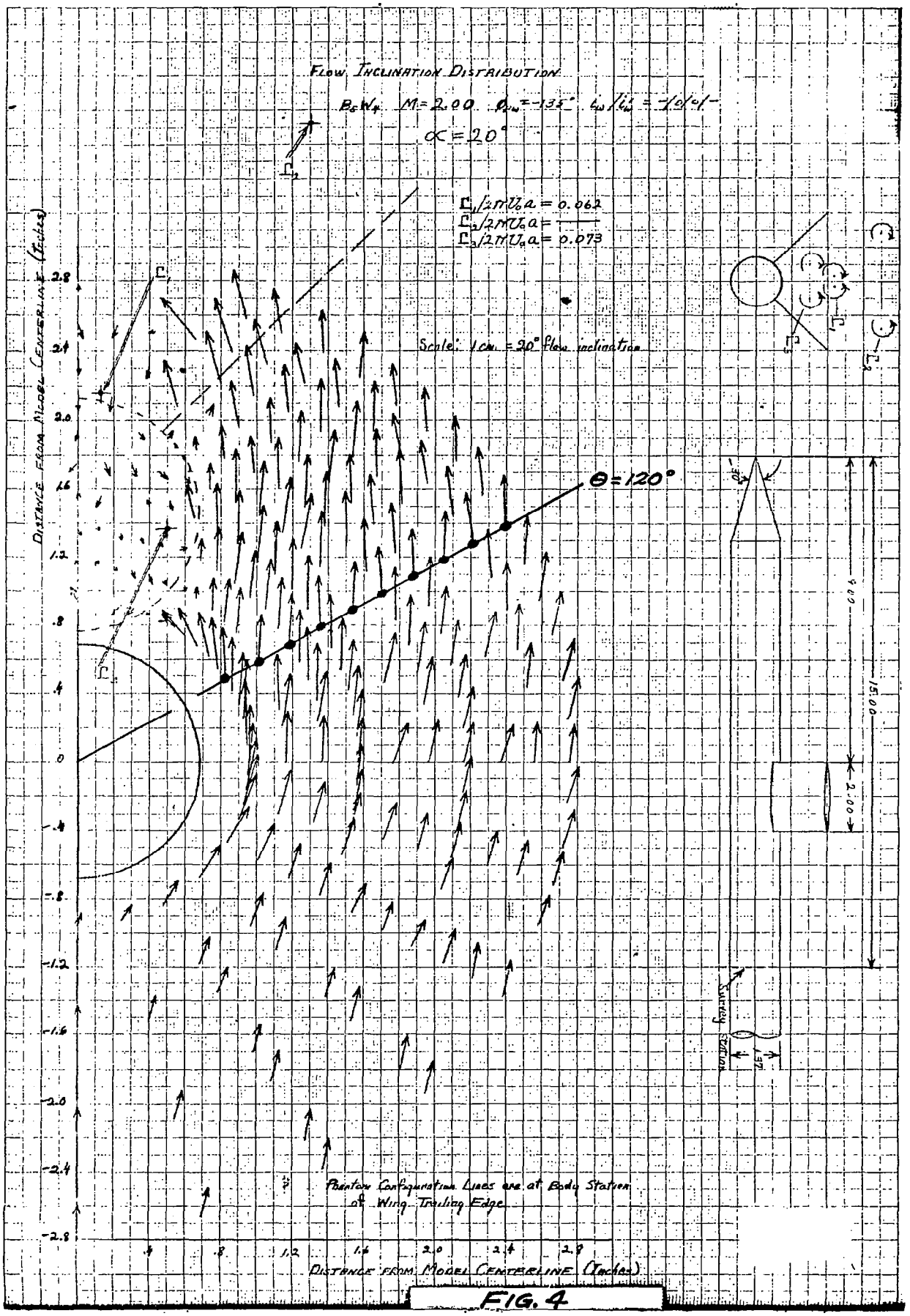

FLOW INCLINATION DISTRIBUTION
B6W4 M=2.00 α_w=-13.5° ε_w/ε_t = 7.0/4.1
α=20°
Γ1/2πU∞a = 0.062
Γ2/2πU∞a = ———
Γ3/2πU∞a = 0.073
Scale: 1 cm = 20° flow inclination
θ=120°
DISTANCE FROM MODEL CENTERLINE (Inches)
DISTANCE FROM MODEL CENTERLINE (Inches)
Phantom Configuration Lines are at Body Station of Wing Trailing Edge
Survey Station
15.00
2.00
.137

FIG. 4

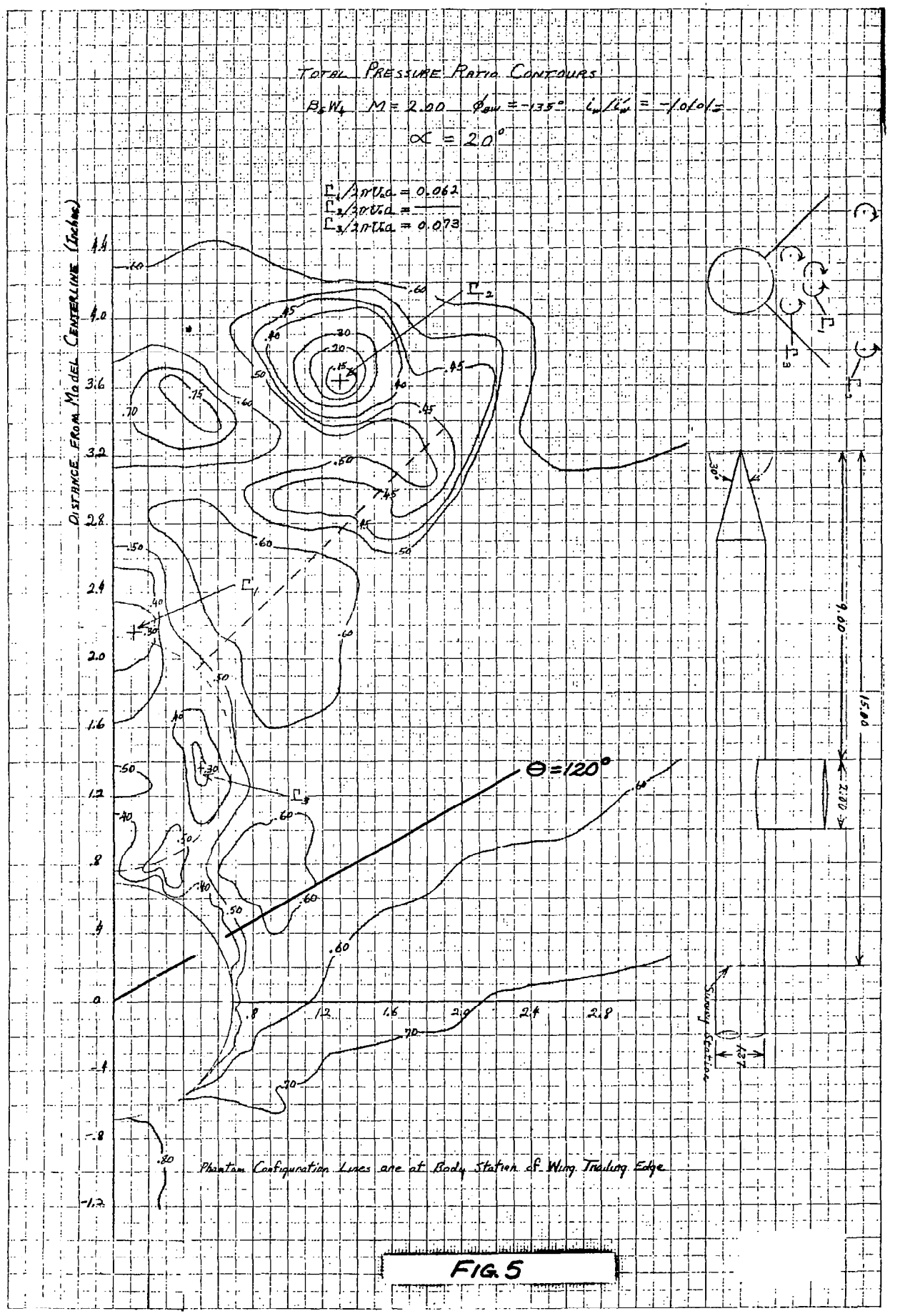

TOTAL PRESSURE RATIO CONTOURS
B_6W_4 $M = 2.00$ $\phi_{BW} = -135°$ $i_w/i'_w = -1.0/1 =$
$\alpha = 20°$
$\Gamma_1/2\pi V_\infty a = 0.062$
$\Gamma_2/2\pi V_\infty a =$
$\Gamma_3/2\pi V_\infty a = 0.073$
DISTANCE FROM MODEL CENTERLINE (Inches)
$\theta = 120°$
Phantom Configuration Lines are at Body Station of Wing Trailing Edge
Sidewall Station
9.00
15.00
2.20
1.27
30°

FIG. 5

APPENDIX - A

TEST LOG and TABULATED FLOW FIELD DATA

OAL 289-19

Runs 4,7,8,9 on Model B_{14} (pp. ~~5F-98~~ 18-60) see errata

Runs 12-18 on Model B_5W_4 (pp. ~~133~~-232) see errata 62-161

NOTES:

1. The identification B_{14} and B_5 denote the same basic body shape. The B_5 body is used for wing attachment.

~~2. Page numbering from the OAL wind tunnel test report has been retained.~~ see errata

TEST LOG
SUPERSONIC WIND TUNNEL
ORDNANCE AEROPHYSICS LABORATORY — DAINGERFIELD, TEXAS

OAL TEST CONDUCTOR M. D. BENNETT MACH NO. 2.00 STING SUPPORT SPECIAL TEST 289-19

OAL TEST ANALYST J. R. HINCHEY OPER. PRESS. 69 IN.HG.ABS. EXTENSION -15 SPONSOR MAC

OUTSIDE TEST CONDUCTOR A. R. KIENKEL OPER. TEMP. 150 °F INTERNAL BALANCE SPECIAL MODEL GMS

RUN	CONFIGURATION	α_i	ϕ	ϕ RAKE	i_1/i_2	i_3/i_4	PRESS. TAPS	FORCE COMP.	DATA POINTS	MANOM. PHOTOS	SPARK	SCHLIEREN	SET-UP	DEW POINT RANGE	REMARKS	DATE	START	STOP
1	B_5	0 to 23 by 4°	0	30 to -45	-/-	-/-	75 mod. 10 Tunnel Static $P_{t,o}$	None	55	55	None	α_i = 0, 23 ϕ = 0 Rake	1	4 to -6	None.	7-6-54	0823	1050
2	"	"	"	-50 to -95	"	"	"	"	70	70	"	None	None	7 to -7	Barometric pressure at 1212 was 29.84. Barometric pressure at 1450 was 29.78.		1212	1450
3	"	"	"	-100 to -150	"	"	"	"	65	65	"	"	"	+11 to +1	Barometric pressure at 1604 was 29.76. Barometric pressure at 1836 was 29.76.		1604	1836
4	B_{14}	"	"	30 to -75	"	"	"	"	91	91	"	"	2	+14 to +7	Barometric pressure at 1934 was 29.76.		1934	2323
5	"	0	"	-80	"	"	"	"	None	None	"	"	None	+39	Dew point too high. Shut down to correct aftercooler leaks.		2353	2359
6	"	"	"	"	"	"	"	"	"	"	"	"	"	39 to 15	None.	7-7-54	0814	0851
7	"	0 to 23 by 4°	"	-80 to -95	"	"	"	"	29	29	"	α_i = 0, 23 ϕ = -90 Rake	"	6 to -2	None.		1017	1124
8	"	"	"	-100 to -110	"	"	"	"	20	20	"	None	"	-7 to -11	None.		1205	1253

TEST LOG
SUPERSONIC WIND TUNNEL
ORDNANCE AEROPHYSICS LABORATORY — DAINGERFIELD, TEXAS

OAL TEST CONDUCTOR M. D. BENNETT MACH NO. 2.00 STING SUPPORT SPECIAL TEST 289-19

OAL TEST ANALYST J. R. HINCHEY OPER. PRESS. 69 IN.HG.ABS. EXTENSION -15 SPONSOR MAC

OUTSIDE TEST CONDUCTOR A. R. KRENKEL OPER. TEMP. 150 °F INTERNAL BALANCE SPECIAL MODEL GMS

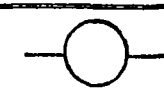
RUN	CONFIGURATION	α_i	ϕ	ϕ RAKE	i_1/i_2	i_3/i_4	PRESS. TAPS	FORCE COMP	DATA POINTS	MANOM. PHOTOS	SPARK	SCHLIEREN	SET-UP	DEW POINT RANGE	REMARKS	DATE	START	STOP
9	B_{14}	0 to 23 by 4°	0	-110 to -150	-/-	-/-	75 mod. 10 Tunnel Static $P_{t,o}$	None	44	44	None	None	None	-15 to -12	None.	7-7-54	1324	1508
~~10~~	B_9	"	"	30 to -80	"	"	"	"	98	98	"	α_1 = 0, 23 ϕ = 30	3	-8 to -10	None.		1522	1925
~~11~~	"	"	"	-85 to -150	"	"	"	"	86	86	"	None	None	-13 to -2	None.		2000	2317
12	W_4B_5	0,16, 20,23	45	30 to ~~-150~~ -30	-/0	0/-	"	"	20	20	"	"	4	+5 to -2	None. 		2330	0017
13	"	"	"	-40 to -150	"	"	"	"	89	89	"	α_1 = 0, 23 ϕ = -60	None	-5 to -12	None. 	7-8-54	0811	1210
14	"	"	-135	30 to -150	"	"	"	"	86	86	"	None	5	-6 to -12	None. 		1310	1647
15	W_4B_5	0,8,12,16, 20,23	45	-30 to -60	0/0	0/0	"	"	60	60	"	"	6	-12 to -13	None. 		1711	1938
16	"	"	"	-65 to -150	"	"	"	"	85	85	"	"	None	-13 to -2	None. 		2018	2342

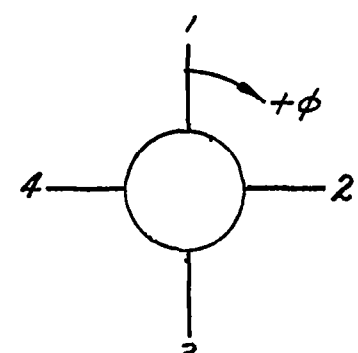
TEST LOG
SUPERSONIC WIND TUNNEL
ORDNANCE AEROPHYSICS LABORATORY — DAINGERFIELD, TEXAS

OAL TEST CONDUCTOR M. D. BENNETT MACH NO. 2.00 STING SUPPORT SPECIAL TEST 289-19

OAL TEST ANALYST J. R. HITCHEY OPER. PRESS. 69 IN.HG.ABS. EXTENSION -15 SPONSOR MAC

OUTSIDE TEST CONDUCTOR A. R. KRONKEL OPER. TEMP. 150 °F INTERNAL BALANCE SPECIAL MODEL GMS

RUN	CONFIGURATION	α_i	ϕ	ϕ RAKE	i_1/i_2	i_3/i_4	PRESS. TAPS	FORCE COMP.	DATA POINTS	MANOM. PHOTOS	SPARK	SCHLIEREN	SET-UP	DEW POINT RANGE	REMARKS	DATE	START	STOP
17	W_4B_5	0,8,12, 16,20,23	0	30 to 100	-/0	-/0	75 mod 10 Tunnel Static Pt,o	None	78	78	α_i = 0, 4,8,12, 16,23	None	7	3 to -2	None. 	7-9-54	0813	1127
18	"	"	"	100 to -150	"	"	"	"	61	61	None	"	None	-7 to 19	Vapor screen photographs obtained with dew point varying from 16 to 19 degrees.		1208	1630



φ = 0 LOOKING UPSTREAM

B14

APPENDIX A (CONTINUED)
TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA
FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.269	-00.30	-270.0	1.926	00.00	00.00	.1350	0.9415	00	000	000	4
0.869	-00.60	-360.0	1.919	00.00	00.00	.1353	0.9336				
1.469	-00.51	-315.0	1.922	00.00	00.00	.1349	0.9353				
2.069	00.04	-135.0	1.939	-00.02	-00.02	.1328	0.9451				
0.269	01.50	-332.7	1.947	00.68	01.33	.1331	0.9591	04	000	000	4
0.869	03.35	-360.0	1.950	00.00	03.35	.1322	0.9569				
1.469	03.98	-360.0	1.957	00.00	03.98	.1308	0.9572				
2.069	03.53	000.0	1.974	00.00	03.53	.1282	0.9636				
0.269	03.63	-345.1	1.924	00.93	03.50	.1375	0.9564	08	000	000	4

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.869	05.12	-360.0	1.884	00.00	05.12	.1411	0.9223				
1.469	08.24	-360.0	1.933	00.00	08.24	.1337	0.9423				
2.069	08.28	-360.0	1.975	00.00	08.28	.1272	0.9575				
0.269	05.50	-351.8	1.889	00.78	05.44	.1450	0.9552	12	000	000	4
0.869	07.75	-360.0	1.831	00.00	07.75	.1488	0.8963				
1.469	12.14	-360.0	1.914	00.00	12.14	.1371	0.9390				
2.069	11.71	-360.0	1.958	00.00	11.71	.1316	0.9649				
0.269	06.90	-352.0	1.831	00.96	06.83	.1594	0.9602	16	000	000	4
0.869	11.37	-360.0	1.822	00.00	11.37	.1565	0.9299				
1.469	12.03	-360.0	1.795	00.00	12.03	.1597	0.9108				
2.069	14.26	-360.0	1.906	00.00	14.26	.1430	0.9669				
0.269	07.41	-350.4	1.745	01.24	07.30	.1835	0.9696	20	000	000	4
0.869	14.12	-360.0	1.794	00.00	14.12	.1697	0.9664				
1.469	12.82	-360.0	1.706	00.00	12.82	.1830	0.9115				
2.069	16.65	-360.0	1.883	00.00	16.65	.1522	0.9938				
0.269	07.93	-351.2	1.673	01.22	07.83	.2047	0.9702	23	000	000	4
0.869	15.08	-360.0	1.736	00.00	15.08	.1859	0.9693				
1.469	14.15	-360.0	1.662	00.00	14.15	.1977	0.9218				
2.069	18.06	-360.0	1.820	00.00	18.06	.1662	0.9848				
0.269	-00.60	-135.0	1.921	00.00	00.00	.1353	0.9367	00	015	000	4
0.869	00.25	-029.9	1.932	-00.12	00.21	.1337	0.9411				
1.469	-00.12	-360.0	1.928	00.00	00.00	.1342	0.9389				
2.069	-00.39	-059.4	1.946	00.00	00.00	.1314	0.9454				
0.269	02.47	-315.0	1.941	01.74	01.74	.1334	0.9523	04	015	000	4
0.869	03.86	-335.4	1.935	01.60	03.51	.1336	0.9448				
1.469	04.51	-333.0	1.957	02.05	04.02	.1303	0.9540				
2.069	04.02	-336.2	1.980	01.62	03.67	.1271	0.9640				
0.269	05.15	-315.0	1.920	03.65	03.65	.1374	0.9497	08	015	000	4
0.869	07.94	-332.1	1.929	03.73	07.02	.1346	0.9434				
1.469	08.75	-333.1	1.944	03.98	07.81	.1324	0.9501				
2.069	08.38	-336.8	1.992	03.32	07.71	.1255	0.9695				
0.269	08.73	-360.0	1.875	00.00	08.73	.1460	0.9413	12	015	000	4
0.869	11.74	-331.7	1.890	05.62	10.36	.1422	0.9382				
1.469	13.75	-332.3	1.895	06.48	12.22	.1393	0.9259				
2.069	12.68	-334.8	1.949	05.47	11.50	.1324	0.9570				
0.269	10.22	-313.2	1.840	07.48	07.03	.1558	0.9517	16	015	000	4
0.869	13.83	-330.6	1.847	06.89	12.10	.1515	0.9353				
1.469	15.33	-330.7	1.875	07.64	13.44	.1472	0.9488				
2.069	14.70	-333.2	1.916	06.74	13.17	.1405	0.9646				
0.269	11.38	-310.7	1.762	08.67	07.47	.1777	0.9633	20	015	000	4
0.869	15.63	-329.7	1.791	08.03	13.57	.1683	0.9533				
1.469	17.47	-329.9	1.825	08.97	15.23	.1612	0.9623				
2.069	17.00	-332.5	1.884	08.03	15.17	.1503	0.9824				
0.269	12.14	-310.7	1.695	09.26	07.98	.1971	0.9654	23	015	000	4

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_0 = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_1	θ	ϕ	RUN
0.869	16.63	-329.1	1.711	08.72	14.37	.1884	0.9456				
1.469	18.68	-328.8	1.751	09.93	16.12	.1784	0.9516				
2.069	18.76	-332.4	1.817	08.94	16.75	.1647	0.9713				
0.269	-00.60	-225.0	1.922	00.00	00.00	.1356	0.9398	00	030	000	4
0.669	-00.04	-210.6	1.954	00.00	00.00	.1305	0.9508				
0.869	00.04	-315.0	1.945	00.02	00.02	.1311	0.9416				
1.269	-00.51	-090.0	1.927	00.00	00.00	.1327	0.9273				
1.469	-00.10	-334.3	1.939	00.00	00.00	.1329	0.9458				
1.869	-00.40	-120.1	1.913	00.00	00.00	.1378	0.9422				
2.069	00.14	-054.9	1.942	-00.11	00.08	.1342	0.9592				
0.269	03.71	-299.6	1.952	03.22	01.83	.1314	0.9541	04	030	000	4
0.669	03.53	-313.9	1.981	02.54	02.44	.1279	0.9719				
0.869	04.48	-315.0	1.934	03.17	03.17	.1325	0.9359				
1.269	03.92	-315.0	1.967	02.77	02.77	.1277	0.9493				
1.469	04.10	-331.7	1.935	01.94	03.61	.1329	0.9402				
1.869	03.94	-328.3	1.961	02.07	03.35	.1314	0.9675				
2.069	03.93	-330.0	1.960	01.96	03.40	.1312	0.9650				
0.269	07.76	-299.0	1.938	06.79	03.78	.1337	0.9497	08	030	000	4
0.669	06.79	-315.0	1.903	04.81	04.81	.1375	0.9258				
0.869	08.74	-315.0	1.927	06.20	06.20	.1339	0.9356				
1.269	08.12	-315.0	2.003	05.76	05.76	.1238	0.9736				
1.469	09.02	-318.9	1.961	05.95	06.82	.1297	0.9556				
1.869	08.54	-328.6	1.968	04.47	07.30	.1300	0.9678				
2.069	08.36	-328.4	1.967	04.40	07.13	.1301	0.9671				
0.269	11.96	-298.1	1.934	10.58	05.69	.1347	0.9514	12	030	000	4
0.669	11.96	-360.0	1.909	00.00	11.96	.1379	0.9370				
0.869	12.78	-315.0	1.913	09.11	09.11	.1374	0.9392				
1.269	11.73	-318.3	1.973	07.86	08.81	.1289	0.9669				
1.469	13.95	-315.0	1.972	09.96	09.96	.1279	0.9584				
1.869	12.66	-325.2	2.011	07.30	10.45	.1255	0.9992				
2.069	12.42	-324.0	1.955	07.37	10.10	.1318	0.9619				
0.269	15.16	-296.5	1.901	13.63	06.89	.1423	0.9551	16	030	000	4
0.669	14.88	-313.3	1.857	10.94	10.32	.1475	0.9252				
0.869	16.16	-360.0	1.906	00.00	16.16	.1403	0.9489				
1.269	15.10	-318.0	1.928	10.23	11.33	.1365	0.9556				
1.469	16.98	-360.0	1.930	00.00	16.98	.1380	0.9683				
1.869	15.43	-323.4	1.935	09.34	12.49	.1390	0.9830				
2.069	15.14	-319.6	1.906	09.94	11.64	.1422	0.9619				
0.269	16.91	-295.3	1.851	15.36	07.40	.1567	0.9737	20	030	000	4
0.669	16.80	-312.3	1.791	12.58	11.48	.1646	0.9327				
0.869	18.13	-313.8	1.815	13.29	12.76	.1598	0.9398				
1.269	16.88	-316.5	1.884	11.79	12.41	.1499	0.9795				
1.469	19.21	-313.9	1.830	14.09	13.58	.1585	0.9539				
1.869	17.94	-321.9	1.856	11.29	14.29	.1551	0.9710				
2.069	17.77	-315.0	1.855	12.76	12.76	.1543	0.9648				
0.269	18.06	-294.8	1.777	16.48	07.78	.1746	0.9685	23	030	000	4
0.669	17.88	-312.4	1.707	13.39	12.27	.1852	0.9241				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.869	19.03	-311.4	1.727	14.50	12.84	.1803	0.9271				
1.269	17.99	-316.7	1.803	12.55	13.29	.1673	0.9659				
1.469	20.20	-312.5	1.766	15.17	13.95	.1762	0.9613				
1.869	19.44	-321.8	1.780	12.31	15.50	.1716	0.9568				
2.069	19.19	-315.0	1.778	13.82	13.82	.1708	0.9485				
0.269	-00.10	-243.0	1.933	00.00	00.00	.1335	0.9411	00	045	000	4
0.669	-00.42	-225.0	1.930	00.00	00.00	.1330	0.9335				
0.869	00.07	-021.6	1.912	-00.02	00.06	.1364	0.9310				
1.269	00.07	-340.7	1.928	00.02	00.06	.1354	0.9479				
1.469	-00.04	-329.8	1.935	00.00	00.00	.1340	0.9479				
1.869	-00.08	-315.0	1.940	00.00	00.00	.1326	0.9452				
2.069	-00.39	-059.4	1.942	00.00	00.00	.1324	0.9464				
0.269	05.24	-290.3	1.965	04.91	01.82	.1293	0.9581	04	045	000	4
0.669	04.56	-299.3	1.961	03.97	02.23	.1287	0.9478				
0.869	04.79	-313.5	1.943	03.47	03.30	.1341	0.9605				
1.269	04.53	-360.0	1.945	00.00	04.53	.1328	0.9539				
1.469	04.94	-360.0	1.944	00.00	04.94	.1323	0.9494				
1.869	04.74	-360.0	1.978	00.00	04.74	.1275	0.9642				
2.069	04.03	-360.0	1.978	00.00	04.03	.1275	0.9642				
0.269	10.53	-289.5	1.958	09.93	03.55	.1290	0.9460	08	045	000	4
0.669	09.31	-299.0	1.930	08.15	04.54	.1319	0.9258				
0.869	09.31	-301.9	1.906	07.92	04.95	.1372	0.9275				
1.269	08.88	-309.9	1.953	06.83	05.72	.1318	0.9587				
1.469	09.74	-305.3	1.922	07.97	05.66	.1346	0.9328				
1.869	09.21	-311.1	1.979	06.96	06.08	.1271	0.9626				
2.069	08.47	-308.3	1.986	06.66	05.27	.1263	0.9670				
0.269	16.21	-287.2	2.034	15.52	04.91	.1175	0.9692	12	045	000	4
0.669	15.33	-298.4	1.917	13.55	07.42	.1321	0.9089				
0.869	14.02	-301.8	1.925	11.98	07.49	.1331	0.9268				
1.269	14.08	-305.2	1.923	11.58	08.22	.1361	0.9450				
1.469	14.16	-302.8	1.910	11.97	07.78	.1372	0.9337				
1.869	14.34	-306.7	1.998	11.58	08.68	.1262	0.9846				
2.069	13.15	-305.0	1.981	10.83	07.63	.1253	0.9520				
0.269	20.75	-283.2	2.013	20.24	04.94	.1200	0.9576	16	045	000	4
0.669	18.33	-296.7	1.930	16.48	08.46	.1314	0.9223				
0.869	18.12	-300.6	1.922	15.73	09.45	.1340	0.9290				
1.269	16.74	-304.1	1.946	13.98	09.57	.1332	0.9586				
1.469	18.08	-301.8	1.936	15.50	09.76	.1344	0.9527				
1.869	16.98	-304.6	1.961	14.10	09.83	.1308	0.9635				
2.069	16.21	-303.2	1.973	13.67	09.04	.1294	0.9711				
0.269	23.09	-280.5	1.931	22.74	04.44	.1349	0.9485	20	045	000	4
0.669	20.37	-295.7	1.853	18.49	09.14	.1481	0.9233				
0.869	20.48	-298.4	1.833	18.18	10.07	.1533	0.9260				
1.269	19.23	-301.7	1.853	16.53	10.38	.1503	0.9370				
1.469	20.51	-300.0	1.866	17.95	10.59	.1489	0.9472				
1.869	19.63	-303.4	1.871	16.58	11.10	.1472	0.9433				
2.069	19.00	-301.3	1.890	16.39	10.14	.1442	0.9515				
0.269	24.49	-279.4	1.871	24.19	04.25	.1475	0.9449	23	045	000	4

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_1	θ	ϕ	RUN
0.669	21.74	-295.8	1.772	19.74	09.84	.1666	0.9169				
0.869	21.72	-299.5	1.757	19.12	11.09	.1714	0.9222				
1.269	20.72	-300.9	1.789	17.98	10.99	.1648	0.9309				
1.469	22.22	-298.9	1.807	19.67	11.16	.1629	0.9461				
1.869	21.29	-302.5	1.803	18.19	11.82	.1626	0.9388				
2.069	20.78	-300.1	1.835	18.17	10.77	.1569	0.9510				
0.269	00.04	-270.0	1.947	00.04	00.00	.1310	0.9439	00	060	000	4
0.469	-00.43	-135.0	1.915	00.00	00.00	.1361	0.9332				
0.669	00.56	-030.0	1.917	-00.28	00.48	.1381	0.9497				
0.869	00.09	-030.2	1.910	-00.04	00.07	.1384	0.9419				
1.069	00.24	-209.9	1.939	00.11	-00.20	.1339	0.9529				
1.269	-00.31	-315.0	1.929	00.00	00.00	.1343	0.9412				
1.469	-00.25	-330.2	1.923	00.00	00.00	.1350	0.9378				
1.669	-00.09	-205.3	1.931	00.00	00.00	.1338	0.9405				
1.869	-00.05	-300.3	1.936	00.00	00.00	.1331	0.9434				
2.069	-00.54	-090.0	1.934	00.00	00.00	.1334	0.9423				
0.269	06.15	-225.0	1.987	04.35	-04.35	.1257	0.9642	04	060	000	4
0.469	05.28	-280.5	1.938	05.19	00.96	.1316	0.9348				
0.669	05.12	-299.3	1.941	04.46	02.51	.1334	0.9520				
0.869	04.79	-300.4	1.935	04.13	02.42	.1357	0.9602				
1.069	04.62	-273.1	1.964	04.61	00.25	.1311	0.9699				
1.269	04.69	-298.4	1.968	04.12	02.23	.1295	0.9644				
1.469	04.87	-299.6	1.952	04.23	02.41	.1315	0.9547				
1.669	04.21	-295.1	1.976	03.81	01.78	.1281	0.9653				
1.869	04.81	-300.0	1.963	04.16	02.40	.1296	0.9575				
2.069	03.86	-299.4	1.975	03.36	01.89	.1282	0.9648				
0.269	12.31	-273.5	1.987	12.28	00.76	.1237	0.9483	08	060	000	4
0.469	11.11	-285.0	1.947	10.74	02.90	.1286	0.9265				
0.669	10.34	-291.7	1.936	09.62	03.85	.1323	0.9375				
0.869	10.24	-297.3	1.892	09.11	04.73	.1397	0.9241				
1.069	09.89	-286.4	1.936	09.49	02.81	.1333	0.9443				
1.269	09.47	-296.0	1.971	08.52	04.18	.1284	0.9604				
1.469	09.87	-297.0	1.944	08.81	04.51	.1313	0.9422				
1.669	08.86	-292.9	1.976	08.17	03.47	.1278	0.9634				
1.869	09.55	-298.8	1.965	08.38	04.63	.1294	0.9586				
2.069	08.67	-297.1	1.965	07.73	03.97	.1289	0.9547				
0.269	18.00	-271.8	2.070	17.99	00.58	.1115	0.9728	12	060	000	4
0.469	16.81	-278.2	2.040	16.64	02.46	.1155	0.9618				
0.669	15.92	-288.1	1.953	15.16	05.06	.1271	0.9247				
0.869	15.48	-293.9	1.908	14.20	06.40	.1348	0.9146				
1.069	15.08	-288.2	1.941	14.35	04.81	.1305	0.9315				
1.269	14.44	-292.3	1.977	13.40	05.58	.1259	0.9508				
1.469	14.93	-293.0	1.957	13.79	05.94	.1288	0.9428				
1.669	13.45	-290.5	1.981	12.62	04.78	.1271	0.9652				
1.869	14.24	-296.3	1.959	12.81	06.41	.1297	0.9518				
2.069	13.32	-292.4	1.955	12.34	05.15	.1306	0.9532				
0.269	24.82	-225.0	2.096	18.10	-18.10	.1045	0.9492	16	060	000	4
0.469	22.18	-275.2	1.986	22.09	02.11	.1169	0.8948				
0.669	21.56	-282.3	1.970	21.10	04.81	.1230	0.9184				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_\infty = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	ϕ	RUN
0.869	20.91	-289.0	1.933	19.86	07.09	.1310	0.9235				
1.069	19.87	-283.4	1.951	19.37	04.78	.1286	0.9326				
1.269	19.37	-287.3	2.028	18.55	05.96	.1199	0.9794				
1.469	20.00	-288.6	2.012	19.03	06.62	.1222	0.9738				
1.669	18.23	-289.0	2.031	17.29	06.12	.1199	0.9848				
1.869	19.20	-294.4	2.018	17.59	08.18	.1214	0.9769				
2.069	18.46	-289.8	2.012	17.43	06.45	.1220	0.9726				
0.269	27.99	-270.0	2.039	27.99	00.00	.1132	0.9411	20	060	000	4
0.469	25.18	-270.7	1.896	25.17	00.32	.1303	0.8680				
0.669	24.41	-277.2	1.891	24.24	03.25	.1363	0.9010				
0.869	23.64	-283.9	1.867	23.02	06.00	.1428	0.9089				
1.069	22.88	-278.3	1.856	22.66	03.48	.1443	0.9032				
1.269	22.43	-282.8	1.950	21.92	05.22	.1321	0.9562				
1.469	23.17	-285.3	1.958	22.43	06.44	.1331	0.9761				
1.669	20.88	-286.1	1.957	20.12	06.03	.1332	0.9753				
1.869	21.83	-292.2	1.952	20.34	08.60	.1338	0.9717				
2.069	21.58	-285.8	1.940	20.83	06.14	.1347	0.9604				
0.269	30.03	-225.0	2.030	22.23	-22.23	.1171	0.9599	23	060	000	4
0.469	26.60	-270.6	1.819	26.59	00.30	.1459	0.8627				
0.669	25.42	-278.0	1.807	25.20	03.78	.1541	0.8945				
0.869	25.25	-279.8	1.804	24.92	04.58	.1556	0.8998				
1.069	24.84	-274.6	1.788	24.76	02.12	.1584	0.8937				
1.269	23.88	-279.7	1.869	23.57	04.26	.1463	0.9346				
1.469	24.97	-282.3	1.904	24.46	05.66	.1445	0.9740				
1.669	22.54	-284.1	1.882	21.92	05.77	.1471	0.9591				
1.869	23.66	-290.7	1.885	22.28	08.80	.1460	0.9558				
2.069	23.61	-283.3	1.876	23.04	05.74	.1464	0.9451				
0.269	-00.18	-223.0	1.941	00.00	00.00	.1311	0.9357	00	070	000	4
0.869	-00.10	-027.0	1.912	00.00	00.00	.1372	0.9363				
1.469	-00.31	-315.0	1.913	00.00	00.00	.1362	0.9310				
2.069	-00.40	-120.6	1.928	00.00	00.00	.1348	0.9435				
0.269	06.44	-225.0	1.983	04.56	-04.56	.1255	0.9562	04	070	000	4
0.869	05.12	-297.3	1.930	04.55	02.35	.1348	0.9461				
1.469	05.08	-294.9	1.950	04.61	02.14	.1315	0.9520				
2.069	03.99	-291.0	1.961	03.72	01.43	.1304	0.9606				
0.269	12.57	-270.0	2.001	12.57	00.00	.1211	0.9493	08	070	000	4
0.869	10.62	-288.9	1.922	10.05	03.47	.1353	0.9377				
1.469	10.34	-287.7	1.946	09.86	03.17	.1307	0.9400				
2.069	09.19	-285.5	1.968	08.86	02.47	.1285	0.9571				
0.269	18.41	-225.0	2.087	13.24	-13.24	.1084	0.9714	12	070	000	4
0.869	15.99	-281.0	1.940	15.71	03.12	.1314	0.9366				
1.469	15.83	-283.3	1.987	15.42	03.73	.1243	0.9528				
2.069	14.00	-278.5	1.972	13.85	02.11	.1276	0.9556				
0.269	24.62	-225.0	2.109	17.95	-17.95	.1011	0.9373	16	070	000	4
0.869	21.65	-274.8	1.956	21.58	01.90	.1251	0.9138				
1.469	21.10	-276.0	2.037	20.99	02.31	.1175	0.9739				
2.069	19.30	-274.6	2.024	19.24	01.60	.1197	0.9717				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
0.269	31.32	-270.0	2.208	31.32	00.00	.0910	0.9851	20	070	000	4
0.869	25.61	-270.0	1.889	25.61	00.00	.1337	0.8809				
1.469	24.03	-270.0	1.980	24.03	00.00	.1269	0.9620				
2.069	22.78	-270.0	1.949	22.78	00.00	.1296	0.9365				
0.269	33.71	-270.0	2.098	33.71	00.00	.1027	0.9366	23	070	000	4
0.869	27.76	-225.0	1.833	20.41	-20.41	.1447	0.8740				
1.469	25.96	-225.0	1.914	18.99	-18.99	.1384	0.9483				
2.069	24.80	-225.0	1.886	18.09	-18.09	.1411	0.9254				
0.269	-00.60	-225.0	1.923	00.00	00.00	.1334	0.9261	00	075	000	4
0.469	-00.09	-296.7	1.910	00.00	00.00	.1367	0.9302				
0.669	-00.28	-360.0	1.908	00.00	00.00	.1386	0.9403				
0.869	-00.24	-329.8	1.911	00.00	00.00	.1371	0.9344				
1.069	00.30	-239.7	1.935	00.25	-00.15	.1338	0.9464				
1.269	-00.39	-301.0	2.872	00.00	00.00	.0639	1.9364				
1.469	-00.31	-315.0	1.921	00.00	00.00	.1353	0.9364				
1.669	-00.09	-244.7	1.922	00.00	00.00	.1352	0.9370				
1.869	-00.10	-297.0	1.917	00.00	00.00	.1361	0.9360				
2.069	-00.40	-149.4	1.924	00.00	00.00	.1354	0.9418				
0.269	06.47	-225.0	1.968	04.58	-04.58	.1268	0.9446	04	075	000	4
0.469	05.68	-225.0	1.948	04.02	-04.02	.1314	0.9483				
0.669	05.28	-283.9	1.928	05.12	01.27	.1355	0.9480				
0.869	05.07	-290.9	1.940	04.73	01.81	.1329	0.9475				
1.069	05.52	-270.0	1.951	05.52	00.00	.1313	0.9521				
1.269	05.24	-284.3	1.971	05.07	01.29	.1286	0.9621				
1.469	04.93	-288.9	1.951	04.66	01.60	.1310	0.9501				
1.669	04.83	-225.0	1.960	03.41	-03.41	.1302	0.9574				
1.869	05.21	-292.5	1.975	04.81	01.99	.1287	0.9686				
2.069	04.16	-281.7	1.970	04.07	00.84	.1293	0.9654				
0.269	12.70	-270.0	2.007	12.70	00.00	.1204	0.9523	08	075	000	4
0.469	11.49	-270.0	1.952	11.49	00.00	.1293	0.9389				
0.669	10.79	-275.9	1.921	10.73	01.12	.1358	0.9401				
0.869	10.49	-276.6	1.918	10.42	01.21	.1351	0.9310				
1.069	10.48	-270.0	1.937	10.48	00.00	.1325	0.9400				
1.269	09.95	-273.9	1.977	09.92	00.68	.1274	0.9619				
1.469	10.19	-277.6	1.950	10.10	01.36	.1306	0.9456				
1.669	09.71	-270.0	1.959	09.71	00.00	.1296	0.9509				
1.869	10.32	-310.2	2.316	07.91	06.70	.0952	1.2211				
2.069	09.11	-273.6	1.977	09.09	00.57	.1274	0.9619				
0.269	18.63	-270.0	2.090	18.63	00.00	.1076	0.9684	12	075	000	4
0.469	18.21	-270.0	2.045	18.21	00.00	.1144	0.9601				
0.669	16.34	-270.9	1.975	16.33	00.26	.1258	0.9472				
0.869	15.92	-225.0	1.930	11.40	-11.40	.1309	0.9185				
1.069	16.84	-270.0	1.976	16.84	00.00	.1252	0.9436				
1.269	15.18	-225.0	2.002	10.86	-10.86	.1220	0.9574				
1.469	15.25	-270.8	1.984	15.24	00.21	.1245	0.9503				
1.669	15.76	-225.0	1.993	11.28	-11.28	.1240	0.9598				
1.869	15.59	-282.0	1.994	15.26	03.32	.1244	0.9643				
2.069	14.04	-225.0	1.972	10.02	-10.02	.1269	0.9509				
0.269	23.91	-270.0	2.085	23.91	00.00	.1065	0.9520	16	075	000	4

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	22.19	-270.0	2.046	22.19	00.00	.1113	0.9360				
0.669	20.93	-225.0	1.958	15.13	-15.13	.1262	0.9253				
0.869	20.99	-225.0	1.948	15.17	-15.17	.1277	0.9217				
1.069	20.67	-266.7	1.943	20.63	-01.24	.1284	0.9193				
1.269	19.73	-225.0	2.054	14.23	-14.23	.1160	0.9875				
1.469	20.22	-225.0	2.026	14.59	-14.59	.1176	0.9577				
1.669	19.81	-270.0	2.044	19.81	00.00	.1166	0.9769				
1.869	20.66	-277.7	2.060	20.48	02.89	.1158	0.9947				
2.069	19.11	-225.0	2.015	13.76	-13.76	.1201	0.9619				
0.269	32.95	-270.0	2.231	32.95	00.00	.0854	0.9582	20	075	000	4
0.469	28.37	-270.0	1.893	28.37	00.00	.1192	0.7898				
0.669	27.96	-270.0	1.901	27.96	00.00	.1266	0.8500				
0.869	27.38	-270.0	1.928	27.38	00.00	.1253	0.8767				
1.069	26.56	-263.8	1.873	26.42	-03.09	.1333	0.8569				
1.269	25.87	-270.0	1.980	25.87	00.00	.1218	0.9233				
1.469	24.71	-270.0	1.997	24.71	00.00	.1225	0.9533				
1.669	24.17	-270.0	1.983	24.17	00.00	.1249	0.9515				
1.869	24.68	-273.4	2.012	24.64	01.56	.1218	0.9707				
2.069	23.79	-270.0	1.966	23.79	00.00	.1257	0.9325				
0.269	35.64	-270.0	2.251	35.64	00.00	.0861	0.9975	23	075	000	4
0.469	31.40	-269.5	1.967	31.39	-00.30	.1145	0.8512				
0.669	30.30	-270.0	1.908	30.30	00.00	.1286	0.8725				
0.869	29.70	-269.3	1.903	29.69	-00.39	.1315	0.8856				
1.069	28.59	-259.2	1.780	28.16	-05.83	.1498	0.8347				
1.269	28.36	-270.0	1.921	28.36	00.00	.1323	0.9153				
1.469	26.92	-270.0	1.940	26.92	00.00	.1322	0.9431				
1.669	26.74	-269.5	1.921	26.73	-00.25	.1357	0.9393				
1.869	26.64	-225.0	1.966	19.53	-19.53	.1300	0.9651				
2.069	26.63	-270.0	1.917	26.63	00.00	.1345	0.9252				
0.269	-00.60	-360.0	1.920	00.00	00.00	.1346	0.9302	00	080	000	4
0.869	-00.28	-360.0	1.929	00.00	00.00	.1354	0.9488				
1.469	-00.31	-315.0	1.931	00.00	00.00	.1346	0.9461				
2.069	-00.51	-135.0	1.920	00.00	00.00	.1357	0.9379				
0.269	06.42	-225.0	1.970	04.54	-04.54	.1278	0.9544	04	080	000	4
0.869	04.84	-282.0	1.947	04.73	01.00	.1332	0.9603				
1.469	04.84	-277.7	1.948	04.79	00.65	.1320	0.9530				
2.069	03.92	-225.0	1.972	02.77	-02.77	.1292	0.9676				
0.269	12.61	-270.0	2.023	12.61	00.00	.1194	0.9685	08	080	000	4
0.869	10.33	-270.0	1.928	10.33	00.00	.1341	0.9386				
1.469	09.81	-270.0	1.943	09.81	00.00	.1323	0.9473				
2.069	08.70	-270.0	1.957	08.70	00.00	.1306	0.9557				
0.269	18.66	-267.8	2.100	18.64	-00.74	.1075	0.9833	12	080	000	4
0.869	15.81	-270.0	1.932	15.81	00.00	.1311	0.9233				
1.469	14.93	-225.0	1.971	10.67	-10.67	.1265	0.9462				
2.069	14.08	-225.0	1.975	10.05	-10.05	.1271	0.9566				
0.269	25.15	-262.7	2.142	24.97	-03.41	.1034	1.0095	16	080	000	4
0.869	21.35	-270.0	1.975	21.35	00.00	.1247	0.9384				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	ϕ	RUN
1.469	19.98	-270.0	1.987	19.98	00.00	.1231	0.9438				
2.069	19.56	-270.0	2.027	19.56	00.00	.1186	0.9682				
0.269	32.25	-268.7	2.221	32.24	-00.82	.0839	0.9273	20	080	000	4
0.869	28.63	-267.3	1.977	28.60	-01.47	.1194	0.9019				
1.469	25.71	-268.3	2.041	25.70	-00.81	.1169	0.9751				
2.069	25.17	-268.0	2.020	25.15	-00.94	.1197	0.9661				
0.269	34.91	-267.5	2.277	34.88	-01.74	.0822	0.9919	23	080	000	4
0.869	31.71	-262.0	2.068	31.45	-04.91	.1131	0.9839				
1.469	28.48	-263.6	1.999	28.32	-03.46	.1250	0.9763				
2.069	28.41	-263.7	1.985	28.26	-03.39	.1270	0.9714				
0.269	-00.70	-360.0	1.913	00.00	00.00	.1352	0.9242	00	085	000	4
0.869	-00.27	-030.0	1.929	00.00	00.00	.1351	0.9469				
1.469	-00.40	-329.4	1.924	00.00	00.00	.1352	0.9401				
2.069	-00.45	-090.0	1.933	00.00	00.00	.1341	0.9454				
0.269	06.59	-225.0	1.962	04.67	-04.67	.1286	0.9487	04	085	000	4
0.869	04.83	-225.0	1.938	03.41	-03.41	.1337	0.9500				
1.469	04.84	-225.0	1.935	03.42	-03.42	.1338	0.9464				
2.069	03.78	-225.0	1.946	02.67	-02.67	.1324	0.9528				
0.269	12.82	-268.9	2.011	12.81	-00.25	.1206	0.9602	08	085	000	4
0.869	10.40	-270.0	1.945	10.40	00.00	.1328	0.9537				
1.469	09.89	-270.0	1.952	09.89	00.00	.1317	0.9559				
2.069	08.93	-270.0	1.965	08.93	00.00	.1303	0.9657				
0.269	19.09	-262.9	2.101	18.95	-02.45	.1079	0.9880	12	085	000	4
0.869	15.96	-270.0	1.935	15.96	00.00	.1307	0.9245				
1.469	15.10	-270.0	1.986	15.10	00.00	.1253	0.9588				
2.069	14.24	-270.0	2.000	14.24	00.00	.1247	0.9756				
0.269	25.32	-258.2	2.149	24.85	-05.52	.1022	1.0097	16	085	000	4
0.869	22.25	-265.1	1.979	22.17	-02.00	.1233	0.9338				
1.469	20.36	-267.3	2.033	20.33	-01.00	.1196	0.9846				
2.069	19.88	-269.3	2.019	19.87	-00.25	.1195	0.9629				
0.269	34.30	-253.3	2.000	33.16	-11.09	.0978	0.7651	20	085	000	4
0.869	30.32	-263.1	2.049	30.13	-04.01	.1086	0.9167				
1.469	27.25	-263.9	2.047	27.11	-03.13	.1139	0.9591				
2.069	26.70	-263.7	2.027	26.56	-03.15	.1172	0.9568				
0.269	35.60	-266.0	2.225	35.53	-02.85	.0810	0.9006	23	085	000	4
0.869	32.84	-259.0	1.977	32.35	-07.02	.1192	0.8999				
1.469	29.51	-260.1	2.032	29.14	-05.55	.1189	0.9774				
2.069	29.64	-259.6	2.020	29.23	-05.86	.1207	0.9747				
0.269	-00.54	-360.0	1.903	00.00	00.00	.1365	0.9188	00	090	000	4
0.469	00.51	-327.6	1.886	00.27	00.43	.1404	0.9208				
0.669	-00.60	-090.0	1.908	00.00	00.00	.1392	0.9445				
0.869	-00.40	-030.6	1.917	00.00	00.00	.1369	0.9421				
1.069	00.16	-234.1	1.911	00.13	-00.09	.1360	0.9271				
1.269	-00.60	-090.0	1.913	00.00	00.00	.1366	0.9339				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.469	-00.51	-315.0	1.906	00.00	00.00	.1378	0.9319				
1.669	-00.09	-225.0	1.915	00.00	00.00	.1367	0.9370				
1.869	-00.60	-225.0	1.911	00.00	00.00	.1372	0.9347				
2.069	-00.05	-120.3	1.929	00.00	00.00	.1349	0.9451				
0.269	06.49	-225.0	1.963	04.59	-04.59	.1286	0.9503	04	090	000	4
0.469	06.07	-225.0	1.945	04.30	-04.30	.1330	0.9553				
0.669	05.39	-270.0	1.957	05.39	00.00	.1334	0.9762				
0.869	05.00	-225.0	1.954	03.54	-03.54	.1329	0.9685				
1.069	05.95	-253.1	1.936	05.69	-01.73	.1331	0.9429				
1.269	04.72	-270.0	1.980	04.72	00.00	.1293	0.9806				
1.469	04.72	-225.0	1.959	03.34	-03.34	.1318	0.9676				
1.669	05.15	-259.5	1.961	05.06	-00.94	.1315	0.9687				
1.869	04.76	-225.0	1.957	03.36	-03.36	.1318	0.9644				
2.069	04.02	-270.0	1.967	04.02	00.00	.1308	0.9724				
0.269	12.89	-265.8	2.008	12.85	-00.96	.1208	0.9570	08	090	000	4
0.469	11.65	-270.0	1.966	11.65	00.00	.1276	0.9473				
0.669	11.00	-270.0	1.957	11.00	00.00	.1317	0.9637				
0.869	10.50	-270.0	1.946	10.50	00.00	.1322	0.9511				
1.069	11.52	-253.1	1.934	11.03	-03.39	.1323	0.9344				
1.269	10.22	-270.0	1.966	10.22	00.00	.1293	0.9593				
1.469	09.98	-270.0	1.959	09.98	00.00	.1306	0.9589				
1.669	10.58	-260.1	1.961	10.42	-01.83	.1304	0.9601				
1.869	09.94	-270.0	1.981	09.94	00.00	.1285	0.9764				
2.069	09.06	-269.4	1.974	09.05	-00.09	.1293	0.9720				
0.269	19.13	-256.1	2.102	18.60	-04.76	.1078	0.9893	12	090	000	4
0.469	17.89	-255.7	2.038	17.36	-04.55	.1151	0.9553				
0.669	17.00	-262.0	2.001	16.84	-02.43	.1236	0.9688				
0.869	16.51	-264.1	1.990	16.42	-01.74	.1243	0.9581				
1.069	17.78	-249.5	1.921	16.71	-06.40	.1267	0.8771				
1.269	16.46	-262.0	2.025	16.30	-02.35	.1199	0.9762				
1.469	15.45	-267.1	1.979	15.43	-00.80	.1256	0.9511				
1.669	16.10	-256.5	2.038	15.67	-03.85	.1197	0.9930				
1.869	15.50	-270.0	2.015	15.50	00.00	.1223	0.9797				
2.069	14.83	-266.2	1.980	14.79	-01.00	.1260	0.9558				
0.269	25.35	-251.0	2.112	24.12	-08.76	.1037	0.9669	16	090	000	4
0.469	24.08	-250.7	2.069	22.86	-08.40	.1069	0.9312				
0.669	23.72	-255.3	1.956	23.02	-06.36	.1221	0.8923				
0.869	22.94	-257.2	1.994	22.42	-05.35	.1208	0.9360				
1.069	23.83	-247.2	1.950	22.15	-09.71	.1225	0.8871				
1.269	23.19	-256.8	2.059	22.64	-05.58	.1147	0.9835				
1.469	21.30	-259.3	2.056	20.96	-04.14	.1162	0.9926				
1.669	21.90	-252.7	2.057	20.99	-06.81	.1168	0.9985				
1.869	20.97	-270.0	2.085	20.97	00.00	.1137	1.0160				
2.069	20.78	-259.3	2.024	20.44	-04.03	.1196	0.9711				
0.269	31.15	-248.8	2.207	29.40	-12.32	.0920	0.9948	20	090	000	4
0.469	31.05	-247.8	2.032	29.13	-12.81	.0998	0.8214				
0.669	31.00	-250.9	1.896	29.58	-11.12	.1146	0.7632				
0.869	29.49	-254.5	1.909	28.58	-08.59	.1187	0.8068				
1.069	28.91	-247.6	2.055	27.04	-11.88	.1136	0.9676				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	β	RUN
1.269	31.20	-255.4	2.201	30.37	-08.67	.0957	1.0255				
1.469	28.62	-258.0	2.062	28.09	-06.47	.1103	0.9503				
1.669	29.19	-252.9	2.094	28.10	-09.32	.1089	0.9865				
1.869	27.84	-270.0	2.139	27.84	00.00	.1044	1.0150				
2.069	28.21	-258.0	2.038	27.68	-06.36	.1140	0.9460				
0.269	39.70	-250.9	2.368	38.11	-15.19	.0706	0.9815	23	090	000	4
0.469	37.98	-256.0	2.238	37.14	-10.69	.0829	0.9404				
0.669	35.96	-255.1	2.182	35.03	-10.56	.0943	0.9795				
0.869	34.03	-254.2	2.007	33.01	-10.41	.1120	0.8859				
1.069	32.10	-246.2	2.116	29.85	-14.20	.1108	1.0392				
1.269	34.11	-252.4	2.131	32.84	-11.57	.1047	1.0052				
1.469	31.40	-254.8	2.161	30.50	-09.09	.1036	1.0421				
1.669	31.89	-250.5	2.168	30.39	-11.73	.1051	1.0684				
1.869	31.24	-265.8	2.251	31.17	-02.54	.0974	1.1288				
2.069	31.48	-253.8	2.132	30.45	-09.69	.1073	1.0308				
0.269	-00.39	-300.6	1.916	00.00	00.00	.1353	0.9289	00	095	000	4
0.869	-00.43	-360.0	1.933	00.00	00.00	.1359	0.9580				
1.469	-00.40	-329.9	1.909	00.00	00.00	.1381	0.9384				
2.069	-00.43	-090.0	1.926	00.00	00.00	.1362	0.9501				
0.269	06.54	-270.0	1.967	06.54	00.00	.1284	0.9544	04	095	000	4
0.869	04.84	-270.0	1.960	04.84	00.00	.1322	0.9719				
1.469	04.74	-270.0	1.956	04.74	00.00	.1321	0.9655				
2.069	04.24	-254.3	1.955	04.08	-01.14	.1322	0.9648				
0.269	12.98	-259.1	2.009	12.75	-02.49	.1212	0.9615	08	095	000	4
0.869	10.96	-264.5	1.950	10.91	-01.06	.1317	0.9532				
1.469	10.14	-264.7	1.964	10.09	-00.94	.1302	0.9637				
2.069	09.62	-256.1	1.961	09.34	-02.33	.1306	0.9618				
0.269	18.86	-249.6	2.110	17.75	-06.79	.1078	1.0012	12	095	000	4
0.869	16.67	-255.2	2.000	16.14	-04.37	.1230	0.9622				
1.469	15.74	-256.7	1.989	15.33	-03.70	.1245	0.9573				
2.069	15.29	-256.0	1.983	14.85	-03.78	.1257	0.9576				
0.269	25.04	-245.3	2.099	22.99	-11.04	.1045	0.9543	16	095	000	4
0.869	23.15	-249.5	1.986	21.82	-08.51	.1203	0.9213				
1.469	22.02	-252.6	2.063	21.10	-06.89	.1140	0.9831				
2.069	21.51	-253.0	2.027	20.65	-06.57	.1183	0.9651				
0.269	31.12	-244.5	2.220	28.58	-14.56	.0906	0.9999	20	095	000	4
0.869	28.81	-247.5	1.959	26.93	-11.88	.1210	0.8880				
1.469	28.42	-249.6	1.995	26.89	-10.68	.1157	0.8981				
2.069	28.76	-252.0	2.027	27.56	-09.62	.1135	0.9265				
0.269	35.14	-245.2	2.167	32.57	-16.44	.0908	0.9215	23	095	000	4
0.869	35.43	-250.5	2.096	33.84	-13.35	.1001	0.9092				
1.469	32.46	-250.6	2.133	30.96	-11.93	.1033	0.9949				
2.069	32.60	-249.9	2.090	30.98	-12.39	.1087	0.9783				
0.269	-00.24	-300.2	1.924	00.00	00.00	.1345	0.9355	00	100	000	4
0.669	-00.54	-315.0	1.924	00.00	00.00	.1378	0.9586				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.869	-00.45	-360.0	1.931	00.00	00.00	.1359	0.9551				
1.269	-00.51	-315.0	1.927	00.00	00.00	.1352	0.9449				
1.469	-00.32	-315.0	1.919	00.00	00.00	.1368	0.9441				
1.869	-00.29	-225.0	1.922	00.00	00.00	.1364	0.9459				
2.069	-00.29	-090.0	1.930	00.00	00.00	.1360	0.9545				
0.269	06.53	-269.7	1.973	06.53	-00.03	.1279	0.9599	04	100	000	4
0.669	05.55	-270.0	1.966	05.55	00.00	.1325	0.9833				
0.869	04.97	-270.0	1.963	04.97	00.00	.1321	0.9756				
1.269	05.16	-259.6	1.970	05.07	-00.93	.1301	0.9720				
1.469	04.92	-268.8	1.959	04.91	-00.10	.1318	0.9672				
1.869	04.95	-269.0	1.960	04.94	-00.08	.1316	0.9678				
2.069	04.23	-245.5	1.955	03.85	-01.75	.1322	0.9647				
0.269	12.81	-252.7	2.001	12.24	-03.86	.1222	0.9578	08	100	000	4
0.669	11.50	-255.6	1.955	11.14	-02.89	.1317	0.9615				
0.869	10.92	-258.0	1.947	10.68	-02.29	.1319	0.9509				
1.269	10.64	-255.8	1.984	10.32	-02.63	.1278	0.9754				
1.469	10.28	-256.4	1.967	09.99	-02.44	.1298	0.9648				
1.869	10.45	-265.2	1.972	10.41	-00.88	.1292	0.9680				
2.069	09.76	-250.0	1.961	09.18	-03.36	.1305	0.9612				
0.269	18.68	-245.1	2.102	17.04	-08.10	.1083	0.9933	12	100	000	4
0.669	17.21	-248.6	2.013	16.08	-06.44	.1212	0.9681				
0.869	16.69	-249.4	1.996	15.67	-06.02	.1231	0.9576				
1.269	16.94	-250.2	2.026	15.99	-05.89	.1199	0.9765				
1.469	15.71	-251.9	1.986	14.96	-04.99	.1248	0.9553				
1.869	16.44	-261.1	2.065	16.25	-02.61	.1167	1.0109				
2.069	15.32	-251.2	1.966	14.53	-05.04	.1271	0.9433				
0.269	24.61	-242.0	2.075	22.01	-12.13	.1065	0.9372	16	100	000	4
0.669	24.44	-244.2	1.985	22.25	-11.18	.1182	0.9033				
0.869	23.39	-245.3	1.996	21.45	-10.24	.1189	0.9250				
1.269	23.84	-247.3	2.054	22.17	-09.67	.1129	0.9618				
1.469	22.12	-248.1	2.069	20.66	-08.62	.1128	0.9822				
1.869	22.77	-257.9	2.120	22.31	-05.02	.1089	1.0270				
2.069	21.88	-249.0	2.020	20.55	-08.18	.1183	0.9545				
0.269	30.95	-242.0	2.188	27.90	-15.72	.0925	0.9699	20	100	000	4
0.669	30.30	-242.8	2.050	27.46	-14.95	.1090	0.9213				
0.869	28.94	-243.9	1.988	26.40	-13.67	.1175	0.9027				
1.269	29.95	-244.6	2.096	27.49	-13.88	.1067	0.9692				
1.469	27.84	-245.9	2.063	25.73	-12.17	.1107	0.9548				
1.869	29.08	-253.3	2.080	28.04	-09.08	.1092	0.9674				
2.069	28.15	-247.2	1.973	26.25	-11.71	.1182	0.8866				
0.269	35.25	-242.7	2.152	32.12	-17.95	.0916	0.9088	23	100	000	4
0.669	35.82	-242.3	1.888	32.58	-18.54	.1130	0.7430				
0.869	34.99	-246.1	1.971	32.61	-15.83	.1076	0.8047				
1.269	35.09	-246.7	2.177	32.83	-15.53	.0945	0.9754				
1.469	32.97	-248.2	2.160	31.05	-13.54	.0983	0.9877				
1.869	32.62	-256.1	2.256	31.85	-08.74	.0923	1.0781				
2.069	33.15	-247.2	2.091	31.05	-14.20	.1061	0.9567				
0.269	-00.28	-225.0	1.937	00.00	00.00	.1334	0.9465	00	105	000	4

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
0.469	00.05	-289.8	1.935	00.04	00.01	.1353	0.9570				
0.669	-00.41	-300.6	1.929	00.00	00.00	.1377	0.9651				
0.869	-00.45	-360.0	1.938	00.00	00.00	.1357	0.9645				
1.069	00.36	-228.5	1.929	00.26	-00.23	.1349	0.9451				
1.269	-00.40	-300.6	1.932	00.00	00.00	.1351	0.9512				
1.669	00.11	-270.0	1.931	00.11	00.00	.1355	0.9527				
1.469	-00.32	-315.0	1.917	00.00	00.00	.1370	0.9426				
1.869	-00.29	-225.0	1.921	00.00	00.00	.1365	0.9448				
2.069	-00.40	-149.4	1.916	00.00	00.00	.1369	0.9401				
0.269	06.68	-259.1	1.968	06.56	-01.26	.1285	0.9571	04	105	000	4
0.469	06.26	-268.7	1.962	06.25	-00.14	.1312	0.9672				
0.669	05.52	-257.7	1.973	05.39	-01.18	.1319	0.9898				
0.869	05.01	-263.5	1.962	04.97	-00.56	.1322	0.9751				
1.069	06.11	-241.9	1.951	05.39	-02.88	.1316	0.9547				
1.269	05.00	-249.0	1.979	04.66	-01.79	.1293	0.9796				
1.469	04.93	-258.5	1.966	04.83	-00.98	.1312	0.9737				
1.669	05.36	-242.5	1.973	04.75	-02.48	.1303	0.9779				
1.869	05.02	-251.8	1.960	04.77	-01.57	.1314	0.9661				
2.069	04.28	-242.4	1.953	03.79	-01.98	.1322	0.9618				
0.269	12.70	-248.6	1.993	11.84	-04.70	.1229	0.9517	08	105	000	4
0.469	11.85	-247.0	1.978	10.93	-04.68	.1265	0.9566				
0.669	11.32	-248.3	1.951	10.53	-04.23	.1321	0.9580				
0.869	10.85	-250.7	1.950	10.25	-03.62	.1314	0.9515				
1.069	11.91	-240.8	1.932	10.43	-05.87	.1328	0.9349				
1.269	10.55	-248.0	1.982	09.79	-03.99	.1279	0.9730				
1.469	10.17	-250.0	1.966	09.56	-03.51	.1298	0.9632				
1.669	10.64	-244.1	1.975	09.59	-04.69	.1292	0.9727				
1.869	10.35	-253.8	1.980	09.94	-02.91	.1287	0.9758				
2.069	09.52	-245.0	1.959	08.64	-04.05	.1312	0.9628				
0.269	18.55	-241.9	2.101	16.48	-08.98	.1082	0.9912	12	105	000	4
0.469	17.78	-241.8	2.052	15.78	-08.61	.1127	0.9565				
0.669	17.42	-243.6	2.003	15.69	-07.94	.1217	0.9564				
0.869	16.70	-244.9	1.994	15.19	-07.25	.1227	0.9509				
1.069	17.80	-239.6	1.997	15.47	-09.22	.1226	0.9546				
1.269	17.03	-245.3	2.023	15.55	-07.29	.1195	0.9690				
1.469	15.73	-246.9	1.981	14.52	-06.30	.1249	0.9490				
1.669	16.47	-243.8	2.019	14.85	-07.43	.1212	0.9770				
1.869	16.33	-253.4	2.044	15.68	-04.78	.1185	0.9933				
2.069	15.36	-246.3	1.956	14.11	-06.30	.1278	0.9340				
0.269	24.15	-239.1	2.049	21.04	-12.96	.1088	0.9178	16	105	000	4
0.469	23.99	-236.1	2.048	20.27	-13.93	.1085	0.9146				
0.669	24.93	-238.6	1.990	21.64	-13.61	.1171	0.9017				
0.869	23.74	-241.2	1.990	21.07	-11.96	.1186	0.9143				
1.069	25.18	-236.9	1.992	21.49	-14.39	.1183	0.9137				
1.269	24.17	-242.4	2.026	21.68	-11.74	.1145	0.9328				
1.469	22.42	-244.4	2.061	20.40	-10.10	.1120	0.9629				
1.669	23.32	-242.7	2.043	20.96	-11.18	.1147	0.9595				
1.869	22.93	-251.3	2.097	21.83	-07.72	.1096	0.9984				
2.069	22.11	-245.7	2.008	20.31	-09.49	.1180	0.9354				
0.269	31.01	-239.5	2.185	27.38	-16.96	.0916	0.9565	20	105	000	4

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_\infty = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	ϕ	RUN
0.469	29.58	-237.1	2.071	25.48	-17.13	.1016	0.8878				
0.669	30.49	-238.2	2.046	26.58	-17.23	.1069	0.8990				
0.869	29.32	-240.2	1.995	25.98	-15.59	.1138	0.8841				
1.069	31.51	-236.1	1.959	26.96	-18.87	.1141	0.8371				
1.269	29.78	-241.0	2.011	26.58	-15.50	.1124	0.8954				
1.469	27.77	-242.3	2.058	24.99	-13.75	.1110	0.9507				
1.669	28.84	-241.1	2.002	25.73	-14.90	.1185	0.9298				
1.869	28.65	-248.3	2.092	26.91	-11.42	.1091	0.9853				
2.069	27.85	-243.5	1.990	25.30	-13.26	.1182	0.9105				
0.269	35.07	-240.0	2.133	31.29	-19.34	.0921	0.8875	23	105	000	4
0.469	34.10	-238.4	2.041	29.97	-19.53	.0996	0.8298				
0.669	34.48	-238.6	1.980	30.37	-19.68	.1096	0.8315				
0.869	33.57	-240.3	1.945	29.96	-18.20	.1141	0.8192				
1.069	35.00	-236.3	1.950	30.22	-21.23	.1164	0.8425				
1.269	35.27	-240.3	1.927	31.56	-19.31	.1143	0.7984				
1.469	32.52	-242.0	1.978	29.37	-16.66	.1106	0.8364				
1.669	33.47	-240.5	1.974	29.91	-18.03	.1148	0.8626				
1.869	33.80	-247.7	2.119	31.77	-14.25	.1012	0.9537				
2.069	33.33	-244.4	2.028	30.67	-15.86	.1086	0.8870				
0.669	-00.46	-225.0	1.930	00.00	00.00	.1380	0.9688	00	110	000	4
1.269	-00.28	-225.0	1.936	00.00	00.00	.1345	0.9530				
1.869	-00.24	-239.8	1.926	00.00	00.00	.1361	0.9492				
0.669	05.38	-251.0	1.959	05.08	-01.75	.1335	0.9797	04	110	000	4
1.269	04.88	-244.4	1.978	04.40	-02.11	.1293	0.9777				
1.869	05.01	-246.8	1.960	04.60	-01.97	.1315	0.9666				
0.669	11.34	-244.4	1.952	10.25	-04.95	.1320	0.9586	08	110	000	4
1.269	10.56	-244.4	1.973	09.54	-04.60	.1284	0.9635				
1.869	10.27	-248.2	1.965	09.55	-03.85	.1299	0.9626				
0.669	17.48	-240.3	2.005	15.29	-08.86	.1210	0.9543	12	110	000	4
1.269	17.04	-242.3	2.012	15.18	-08.10	.1205	0.9607				
1.869	16.34	-248.2	2.024	15.22	-06.21	.1200	0.9748				
0.669	25.68	-235.1	2.003	21.52	-15.38	.1153	0.9070	16	110	000	4
1.269	24.37	-240.6	2.014	21.53	-12.53	.1153	0.9217				
1.869	22.62	-247.4	2.079	21.04	-09.09	.1112	0.9835				
0.669	30.20	-234.9	2.013	25.46	-18.50	.1090	0.8704	20	110	000	4
1.269	29.55	-238.3	2.028	25.75	-16.58	.1125	0.9189				
1.869	28.55	-245.3	2.107	26.30	-12.80	.1073	0.9914				
0.669	34.44	-235.5	1.956	29.47	-21.22	.1105	0.8081	23	110	000	4
1.269	34.49	-238.2	2.012	30.28	-19.90	.1085	0.8651				
1.869	33.73	-244.1	2.053	30.98	-16.25	.1038	0.8820				
0.669	-00.28	-225.0	1.907	00.00	00.00	.1393	0.9433	00	115	000	4
1.269	-00.30	-225.0	1.941	00.00	00.00	.1338	0.9552				
1.869	-00.26	-240.2	1.927	00.00	00.00	.1355	0.9470				
0.669	05.43	-245.3	1.950	04.93	-02.27	.1346	0.9743	04	115	000	4

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.269	04.87	-241.3	1.962	04.27	-02.34	.1310	0.9660				
1.869	04.95	-243.3	1.953	04.42	-02.22	.1321	0.9606				
0.669	11.53	-242.3	1.952	10.23	-05.41	.1321	0.9588	08	115	000	4
1.269	10.74	-242.6	1.966	09.55	-04.98	.1290	0.9575				
1.869	10.16	-244.2	1.961	09.16	-04.46	.1301	0.9583				
0.669	17.88	-237.9	1.980	15.28	-09.72	.1220	0.9250	12	115	000	4
1.269	17.12	-240.8	2.015	15.05	-08.54	.1199	0.9605				
1.869	16.10	-246.0	2.036	14.77	-06.69	.1190	0.9848				
0.669	26.01	-232.3	2.010	21.11	-16.61	.1137	0.9035	16	115	000	4
1.269	24.29	-238.6	2.010	21.06	-13.23	.1153	0.9164				
1.869	22.66	-245.5	2.080	20.80	-09.82	.1105	0.9791				
0.669	29.88	-231.5	1.984	24.21	-19.68	.1106	0.8442	20	115	000	4
1.269	30.03	-236.8	2.066	25.81	-17.56	.1078	0.9346				
1.869	28.70	-243.6	2.104	26.12	-13.68	.1061	0.9774				
0.669	34.71	-233.3	1.949	29.04	-22.48	.1109	0.8018	23	115	000	4
1.269	33.97	-236.8	2.017	29.41	-20.25	.1090	0.8751				
1.869	32.43	-242.4	2.103	29.38	-16.40	.1028	0.9440				
0.469	-00.10	-243.0	1.921	00.00	00.00	.1357	0.9389	00	120	000	4
0.669	00.15	-304.6	1.897	00.12	00.08	.1399	0.9330				
1.069	00.33	-270.0	1.920	00.33	00.00	.1365	0.9434				
1.269	-00.26	-239.7	1.940	00.00	00.00	.1341	0.9558				
1.669	00.15	-215.1	1.933	00.08	-00.12	.1347	0.9497				
1.869	-00.05	-239.7	1.930	00.00	00.00	.1348	0.9460				
0.469	05.86	-241.0	1.973	05.12	-02.84	.1294	0.9706	04	120	000	4
0.669	05.56	-245.7	1.938	05.07	-02.29	.1353	0.9611				
1.069	05.82	-234.3	1.944	04.73	-03.40	.1339	0.9605				
1.269	04.86	-240.9	1.975	04.24	-02.36	.1297	0.9758				
1.669	05.12	-237.9	1.967	04.34	-02.72	.1306	0.9708				
1.869	04.90	-240.9	1.955	04.28	-02.38	.1315	0.9596				
0.469	12.02	-238.2	1.984	10.25	-06.40	.1254	0.9573	08	120	000	4
0.669	11.64	-241.4	1.947	10.25	-05.63	.1322	0.9527				
1.069	11.78	-237.1	1.955	09.93	-06.46	.1310	0.9558				
1.269	10.45	-241.1	1.974	09.17	-05.09	.1279	0.9611				
1.669	10.63	-238.9	1.954	09.12	-05.53	.1308	0.9530				
1.869	10.05	-242.5	1.973	08.93	-04.67	.1288	0.9665				
0.469	17.59	-231.2	2.052	13.87	-11.23	.1122	0.9522	12	120	000	4
0.669	18.17	-235.0	1.983	15.04	-10.66	.1213	0.9242				
1.069	18.74	-230.1	2.015	14.58	-12.27	.1212	0.9706				
1.269	17.21	-239.4	2.021	14.92	-08.96	.1189	0.9613				
1.669	16.83	-237.3	2.000	14.28	-09.28	.1228	0.9606				
1.869	15.93	-243.5	1.994	14.32	-07.25	.1237	0.9587				
0.469	24.03	-225.0	2.242	17.49	-17.49	.0899	1.0261	16	120	000	4
0.669	27.42	-226.3	2.036	20.55	-19.71	.1096	0.9073				
1.069	26.36	-228.0	2.019	20.21	-18.34	.1168	0.9411				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.269	24.60	-237.0	2.006	21.00	-14.00	.1145	0.9041				
1.669	23.61	-236.1	2.010	19.94	-13.70	.1168	0.9282				
1.869	22.36	-243.0	2.047	20.12	-10.57	.1128	0.9501				
0.469	27.10	-230.7	2.132	21.60	-17.95	.0916	0.8799	20	120	000	4
0.669	31.57	-225.8	2.120	23.77	-23.19	.0992	0.9359				
1.069	33.37	-225.0	2.053	24.97	-24.97	.1104	0.9381				
1.269	30.42	-234.6	2.097	25.57	-18.78	.1035	0.9425				
1.669	30.35	-234.6	2.098	25.51	-18.73	.1056	0.9622				
1.869	28.96	-241.4	2.099	25.91	-14.83	.1041	0.9508				
0.469	34.13	-270.0	2.180	34.13	00.00	.0870	0.9018	23	120	000	4
0.669	35.29	-227.6	2.056	27.59	-25.51	.1006	0.8585				
1.069	38.24	-270.0	1.997	38.24	00.00	.1103	0.8594				
1.269	34.17	-234.2	2.003	28.83	-21.65	.1094	0.8596				
1.669	34.60	-233.8	2.035	29.10	-22.16	.1091	0.9012				
1.869	32.59	-240.3	2.145	29.04	-17.57	.0981	0.9620				
0.669	00.68	-360.0	1.895	00.00	00.68	.1396	0.9280	00	125	000	4
1.269	-00.40	-239.7	1.933	00.00	00.00	.1350	0.9516				
1.869	00.10	-239.8	1.916	00.08	-00.05	.1363	0.9361				
0.669	05.79	-246.3	1.915	05.30	-02.33	.1368	0.9381	04	125	000	4
1.269	04.79	-239.6	1.969	04.13	-02.42	.1304	0.9721				
1.869	04.96	-239.8	1.953	04.28	-02.49	.1318	0.9584				
0.669	12.05	-239.7	1.931	10.44	-06.14	.1331	0.9356	08	125	000	4
1.269	10.56	-239.1	1.960	09.08	-05.46	.1296	0.9527				
1.869	09.79	-240.5	1.968	08.54	-04.85	.1291	0.9614				
0.669	18.40	-228.3	2.017	13.94	-12.47	.1172	0.9413	12	125	000	4
1.269	17.22	-236.7	2.030	14.52	-09.65	.1183	0.9699				
1.869	15.46	-240.9	1.958	13.58	-07.66	.1274	0.9338				
0.669	29.28	-225.0	2.120	21.62	-21.62	.1012	0.9551	16	125	000	4
1.269	24.87	-234.6	2.020	20.69	-15.03	.1129	0.9111				
1.869	22.22	-240.6	2.021	19.59	-11.33	.1148	0.9277				
0.669	31.23	-221.4	2.204	21.84	-24.45	.0923	0.9940	20	125	000	4
1.269	31.42	-232.2	2.161	25.76	-20.52	.0962	0.9682				
1.869	29.41	-239.4	2.165	25.88	-16.01	.0972	0.9837				
0.669	36.13	-222.7	2.072	26.33	-28.21	.0988	0.8655	23	125	000	4
1.269	34.73	-231.9	2.078	28.61	-23.15	.1011	0.8931				
1.869	32.61	-238.5	2.282	28.61	-18.48	.0871	1.0596				
0.469	-00.04	-210.4	1.948	00.00	00.00	.1318	0.9516	00	130	000	4
0.669	-00.20	-270.0	1.929	00.00	00.00	.1350	0.9461				
1.069	00.51	-237.1	1.897	00.42	-00.27	.1391	0.9281				
1.269	-00.10	-244.3	1.929	00.00	00.00	.1359	0.9520				
1.669	00.36	-222.7	1.928	00.24	-00.26	.1343	0.9398				
1.869	00.30	-239.7	1.923	00.25	-00.15	.1352	0.9388				
0.469	05.84	-240.5	1.964	05.08	-02.88	.1293	0.9565	04	130	000	4

APPENDIX A (CONTINUED)
TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA
FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
0.669	05.07	-240.7	1.946	04.42	-02.48	.1328	0.9555				
1.069	05.80	-235.7	1.928	04.79	-03.27	.1353	0.9470				
1.269	04.70	-238.5	1.962	04.01	-02.45	.1314	0.9693				
1.669	05.19	-225.8	1.970	03.72	-03.62	.1299	0.9701				
1.869	04.72	-238.5	1.961	04.02	-02.47	.1310	0.9646				
0.469	12.84	-230.4	2.002	09.96	-08.26	.1218	0.9558	08	130	000	4
0.669	12.21	-239.2	1.937	10.52	-06.32	.1312	0.9308				
1.069	12.03	-232.9	1.921	09.64	-07.32	.1342	0.9285				
1.269	10.46	-237.8	1.952	08.87	-05.61	.1310	0.9513				
1.669	10.34	-232.6	1.957	08.24	-06.32	.1301	0.9524				
1.869	09.49	-239.1	1.941	08.16	-04.90	.1324	0.9448				
0.469	15.73	-224.8	2.069	11.22	-11.30	.1104	0.9618	12	130	000	4
0.669	19.33	-270.0	2.051	19.33	00.00	.1133	0.9591				
1.069	20.26	-225.0	1.996	14.62	-14.62	.1217	0.9462				
1.269	17.30	-235.7	2.016	14.42	-09.95	.1193	0.9570				
1.669	16.43	-233.0	2.000	13.25	-10.06	.1223	0.9574				
1.869	15.38	-239.5	1.952	13.33	-07.94	.1281	0.9303				
0.469	12.84	-213.0	2.329	07.07	-10.82	.0672	0.8796	16	130	000	4
0.669	27.47	-230.5	2.165	21.85	-18.29	.0921	0.9327				
1.069	27.61	-225.0	2.073	20.29	-20.29	.1102	0.9664				
1.269	25.02	-233.4	2.022	20.54	-15.55	.1113	0.9016				
1.669	23.39	-232.1	1.984	18.84	-14.87	.1182	0.9025				
1.869	21.99	-239.2	2.025	19.13	-11.68	.1140	0.9276				
0.469	13.61	-211.5	1.749	07.21	-11.66	.0930	0.4946	20	130	000	4
0.669	29.21	-269.9	2.180	29.20	-00.05	.0888	0.9206				
1.069	33.25	-219.2	2.182	22.50	-26.93	.0978	1.0165				
1.269	32.29	-230.2	2.099	25.89	-22.02	.0998	0.9108				
1.669	31.59	-231.3	2.186	25.63	-21.03	.0935	0.9778				
1.869	29.77	-238.5	2.151	25.99	-16.64	.0954	0.9454				
0.469	17.18	-221.9	2.029	11.66	-12.95	.0711	0.5824	23	130	000	4
0.669	35.74	-221.3	2.231	25.40	-28.39	.0823	0.9237				
1.069	37.58	-220.0	2.345	26.31	-30.51	.0830	1.1132				
1.269	35.38	-229.8	2.186	28.47	-24.62	.0914	0.9557				
1.669	35.71	-229.3	2.287	28.58	-25.11	.0855	1.0472				
1.869	33.25	-237.3	2.260	28.88	-19.50	.0853	1.0027				
0.469	-00.09	-206.7	1.951	00.00	00.00	.1319	0.9570	00	135	000	4
0.669	-00.32	-270.0	1.929	00.00	00.00	.1350	0.9459				
1.069	00.90	-241.6	1.885	00.79	-00.42	.1403	0.9186				
1.269	00.01	-225.0	1.926	00.00	00.00	.1370	0.9558				
1.669	00.35	-222.7	1.934	00.23	-00.25	.1341	0.9469				
1.869	-00.05	-239.7	1.929	00.00	00.00	.1347	0.9440				
0.469	05.21	-231.5	1.989	04.08	-03.24	.1263	0.9716	04	135	000	4
0.669	04.77	-237.5	1.965	04.02	-02.56	.1305	0.9666				
1.069	05.74	-228.1	1.920	04.27	-03.84	.1362	0.9414				
1.269	04.61	-236.5	1.957	03.84	-02.54	.1325	0.9696				
1.669	04.90	-270.0	1.955	04.90	00.00	.1314	0.9586				
1.869	04.50	-225.0	1.955	03.18	-03.18	.1314	0.9586				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	12.82	-230.3	2.095	09.93	-08.27	.1117	1.0133	08	135	000	4
0.669	11.92	-234.1	1.979	09.70	-07.05	.1260	0.9542				
1.069	11.53	-230.2	1.925	08.90	-07.43	.1350	0.9398				
1.269	10.01	-237.8	1.945	08.49	-05.37	.1319	0.9475				
1.669	09.76	-225.0	1.925	06.93	-06.93	.1341	0.9340				
1.869	09.27	-234.9	1.934	07.60	-05.36	.1330	0.9392				
0.469	12.30	-208.7	2.049	05.97	-10.82	.1085	0.9156	12	135	000	4
0.669	19.55	-219.9	2.095	12.83	-15.23	.1082	0.9819				
1.069	20.48	-225.0	2.035	14.79	-14.79	.1206	0.9969				
1.269	17.30	-234.4	1.974	14.21	-10.27	.1234	0.9273				
1.669	16.03	-228.7	1.968	12.18	-10.73	.1258	0.9361				
1.869	14.97	-237.5	1.945	12.70	-08.17	.1289	0.9262				
0.469	04.03	-140.0	2.147	-02.59	-03.08	.0719	0.7080	16	135	000	4
0.669	22.96	-237.8	2.316	19.72	-12.72	.0747	0.9578				
1.069	27.13	-224.2	2.155	19.65	-20.17	.1029	1.0259				
1.269	24.99	-232.1	2.029	20.19	-15.97	.1098	0.8985				
1.669	23.47	-229.7	2.000	18.32	-15.68	.1155	0.9037				
1.869	21.69	-237.8	2.030	18.60	-11.96	.1130	0.9259				
0.469	17.40	-184.4	1.515	01.37	-17.35	.1048	0.3932	20	135	000	4
0.669	19.99	-221.4	2.406	13.52	-15.26	.0705	1.0413				
1.069	33.63	-218.8	2.112	22.62	-27.40	.0947	0.8829				
1.269	32.99	-228.3	2.194	25.85	-23.35	.0903	0.9569				
1.669	32.15	-228.8	2.269	25.30	-22.48	.0858	1.0225				
1.869	29.98	-237.7	2.182	25.99	-17.13	.0911	0.9471				
0.469	19.52	-204.8	1.721	06.45	-17.83	.0775	0.3950	23	135	000	4
0.669	27.35	-230.5	2.297	21.75	-18.21	.0705	0.8779				
1.069	39.39	-218.3	2.103	26.97	-32.79	.0871	0.8003				
1.269	36.21	-227.0	2.408	28.16	-26.53	.0742	1.0984				
1.669	35.29	-225.4	2.344	26.74	-26.42	.0786	1.0531				
1.869	33.59	-236.3	2.388	28.92	-20.22	.0747	1.0725				
0.469	-00.07	-210.3	1.972	00.00	00.00	.1309	0.9809	00	140	000	4
1.069	01.16	-255.5	1.916	01.12	-00.29	.1374	0.9434				
1.669	00.35	-270.0	1.908	00.35	00.00	.1368	0.9284				
0.469	04.91	-231.7	2.007	03.85	-03.04	.1261	0.9974	04	140	000	4
1.069	05.87	-234.4	1.921	04.77	-03.42	.1365	0.9446				
1.669	04.73	-270.0	1.932	04.73	00.00	.1340	0.9433				
0.469	13.72	-234.8	1.958	11.28	-08.01	.1121	0.8219	08	140	000	4
1.069	11.54	-227.4	1.896	08.54	-07.86	.1380	0.9189				
1.669	09.54	-225.0	1.923	06.78	-06.78	.1348	0.9360				
0.469	12.89	-181.4	1.973	00.32	-12.88	.1097	0.8234	12	140	000	4
1.069	21.16	-225.0	1.920	15.30	-15.30	.1278	0.8831				
1 669	15.55	-225.8	1.919	11.28	-10.97	.1320	0.9112				
.469	05.52	-115.3	2.065	-04.99	-02.36	.0850	0.7360	16	140	000	4
..069	28.83	-221.6	2.048	20.07	-22.37	.1032	0.8697				
1.669	23.24	-227.4	1.965	17.54	-16.20	.1182	0.8762				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
0.469	13.85	-176.2	2.127	-00.93	-13.82	.0758	0.7234	20	140	000	4
1.069	29.69	-222.3	2.373	20.99	-22.86	.0690	0.9668				
1.669	32.01	-228.2	2.161	24.98	-22.61	.0890	0.8955				
0.469	11.76	-201.5	2.365	04.36	-10.96	.0552	0.7640	23	140	000	4
1.669	36.52	-270.0	2.811	36.52	00.00	.0519	1.4317				
0.469	-00.07	-210.3	1.962	00.00	00.00	.1319	0.9727	00	145	000	4
1.069	00.55	-225.0	1.948	00.38	-00.38	.1329	0.9592				
1.669	00.47	-225.0	1.895	00.33	-00.33	.1385	0.9211				
0.469	04.68	-229.8	1.984	03.57	-03.02	.1284	0.9798	04	145	000	4
1.069	05.41	-270.0	1.948	05.41	00.00	.1329	0.9597				
1.669	04.49	-270.0	1.888	04.49	00.00	.1394	0.9167				
0.469	11.68	-238.3	2.022	09.97	-06.20	.1046	0.8472	08	145	000	4
1.069	10.34	-225.0	1.917	07.35	-07.35	.1350	0.9284				
1.669	09.25	-225.0	1.900	06.57	-06.57	.1374	0.9208				
0.469	13.50	-173.1	2.096	-01.65	-13.40	.0995	0.9039	12	145	000	4
1.069	21.13	-227.2	1.909	15.83	-14.71	.1279	0.8696				
1.669	15.13	-225.0	1.903	10.82	-10.82	.1341	0.9026				
0.469	06.37	-119.8	1.952	-05.53	-03.17	.0945	0.6863	16	145	000	4
1.069	27.97	-217.7	2.117	17.99	-22.79	.0936	0.8792				
1.669	23.17	-226.7	1.919	17.30	-16.35	.1221	0.8425				
0.469	10.39	-158.4	2.504	-03.86	-09.67	.0612	1.0527	20	145	000	4
1.069	26.82	-221.9	2.439	18.65	-20.62	.0593	0.9200				
1.669	30.69	-228.8	2.015	24.06	-21.35	.0957	0.7668				
0.469	08.61	-189.2	2.568	01.38	-08.50	.0486	0.9227	23	145	000	4
1.069	18.20	-222.0	2.113	12.40	-13.73	.0704	0.6565				
1.669	36.73	-223.2	2.247	27.05	-28.54	.0761	0.8753				
0.469	-00.20	-270.0	1.944	00.00	00.00	.1335	0.9577	00	150	000	4
1.069	00.58	-210.0	1.944	00.29	-00.50	.1314	0.9426				
1.669	01.16	-255.3	1.901	01.12	-00.29	.1379	0.9253				
0.469	04.39	-227.1	1.973	03.21	-02.99	.1290	0.9681	04	150	000	4
1.069	05.26	-270.0	1.943	05.26	00.00	.1317	0.9433				
1.669	04.74	-270.0	1.923	04.74	00.00	.1373	0.9537				
0.469	12.30	-246.5	1.784	11.30	-04.96	.1095	0.6139	08	150	000	4
1.069	10.11	-225.0	1.931	07.19	-07.19	.1331	0.9356				
1.669	08.99	-221.2	1.905	05.94	-06.78	.1385	0.9353				
0.469	12.62	-147.1	2.283	-06.93	-10.64	.0813	0.9905	12	150	000	4
1.069	18.08	-232.2	2.058	14.46	-11.31	.1176	1.0075				
1.669	14.14	-270.0	1.890	14.14	00.00	.1372	0.9051				
0.469	07.25	-121.2	2.123	-06.21	-03.77	.0903	0.8556	16	150	000	4
1.069	21.21	-216.6	2.515	13.02	-17.30	.0783	1.3681				
1.669	22.36	-226.3	1.893	16.56	-15.86	.1256	0.8325				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	06.35	-135.0	2.595	-04.50	-04.50	.0547	1.0831	20	150	000	4
1.069	-10.36	-269.7	2.000	00.00	00.00	.0948	0.7416				
1.669	35.99	-225.0	1.787	27.18	-27.18	.1161	0.6537				
0.469	03.36	-146.9	2.359	-01.83	-02.81	.0467	0.6404	23	150	000	4
1.069	29.81	-212.6	1.962	17.15	-25.76	.0594	0.4382				
0.469	-00.19	-270.0	1.929	00.00	00.00	.1356	0.9499	00	155	000	4
1.069	00.49	-212.4	1.951	00.26	-00.41	.1319	0.9570				
1.669	00.12	-270.0	1.912	00.12	00.00	.1367	0.9333				
0.469	03.90	-225.0	1.967	02.76	-02.76	.1303	0.9685	04	155	000	4
1.069	04.73	-210.0	1.979	02.36	-04.09	.1287	0.9748				
1.669	04.15	-212.1	1.931	02.20	-03.51	.1344	0.9450				
0.469	09.56	-280.6	1.782	09.40	01.77	.1124	0.6282	08	155	000	4
1.069	08.55	-216.2	1.939	05.07	-06.91	.1324	0.9423				
1.669	08.38	-211.2	1.923	04.36	-07.18	.1349	0.9371				
0.469	11.53	-112.1	2.281	-10.70	-04.38	.0744	0.9028	12	155	000	4
1.069	16.47	-239.9	1.913	14.34	-08.43	.1243	0.8500				
1.669	13.36	-224.0	1.862	09.36	-09.69	.1403	0.8869				
0.469	08.92	-092.0	2.139	-08.91	-00.31	.0868	0.8441	16	155	000	4
1.069	23.56	-219.6	2.341	15.53	-18.57	.0676	0.9009				
1.669	20.84	-229.1	1.862	16.05	-13.99	.1302	0.8231				
0.469	07.74	-068.3	2.382	-07.19	02.87	.0530	0.7541	20	155	000	4
1.069	12.84	-213.6	2.334	07.18	-10.74	.0464	0.6126				
1.669	31.86	-228.8	1.916	25.06	-22.26	.1055	0.7245				
0.469	06.12	-045.0	2.084	-04.33	04.33	.0512	0.4567	23	155	000	4
1.069	11.99	-210.5	2.198	06.15	-10.36	.0502	0.5355				
1.669	37.26	-214.2	1.777	23.15	-32.17	.1014	0.5626				
0.469	-00.19	-223.0	1.923	00.00	00.00	.1357	0.9421	00	160	000	4
1.069	00.63	-210.3	1.938	00.31	-00.54	.1331	0.9459				
1.669	00.03	-135.0	1.916	-00.02	-00.02	.1353	0.9293				
0.469	03.39	-225.0	1.944	02.39	-02.39	.1323	0.9494	04	160	000	4
1.069	04.63	-209.5	1.959	02.28	-04.03	.1308	0.9604				
1.669	04.04	-208.4	1.954	01.92	-03.55	.1314	0.9574				
0.469	07.71	-302.0	1.818	06.55	04.10	.1195	0.7057	08	160	000	4
1.069	07.94	-211.6	1.928	04.18	-06.77	.1341	0.9382				
1.669	07.93	-209.5	1.933	03.92	-06.91	.1343	0.9468				
0.469	13.64	-059.4	1.989	-11.79	07.04	.0904	0.6949	12	160	000	4
1.069	12.97	-244.2	1.821	11.71	-05.72	.1306	0.7749				
1.669	11.23	-213.2	1.914	06.20	-09.43	.1362	0.9331				
0.469	10.99	-060.8	1.976	-09.62	05.41	.0939	0.7080	16	160	000	4
1.069	12.48	-240.8	1.794	10.93	-06.16	.0664	0.3783				
1.669	17.43	-233.1	1.901	14.09	-10.67	.1317	0.8839				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
0.469	13.09	-044.1	2.079	-09.19	09.48	.0641	0.5671	20	160	000	4
1.069	00.86	-329.8	2.038	00.43	00.74	.0508	0.4221				
1.669	25.72	-236.1	1.872	21.79	-15.03	.1048	0.6728				
0.469	11.85	-027.5	2.011	-05.53	10.54	.0567	0.4513	23	160	000	4
1.069	00.80	-335.3	1.997	00.33	00.72	.0522	0.4068				
1.669	21.62	-211.5	1.834	11.69	-18.67	.0739	0.4473				
0.469	-00.10	-270.0	1.917	00.00	00.00	.1363	0.9376	00	165	000	4
1.069	00.45	-270.0	1.931	00.45	00.00	.1344	0.9448				
1.669	-00.05	-210.3	1.914	00.00	00.00	.1368	0.9369				
0.469	02.65	-270.0	1.946	02.65	00.00	.1327	0.9544	04	165	000	4
1.069	04.48	-208.1	1.950	02.11	-03.95	.1323	0.9579				
1.669	03.93	-203.9	1.945	01.59	-03.59	.1334	0.9579				
0.469	05.37	-315.0	1.977	03.78	03.78	.1236	0.9336	08	165	000	4
1.069	06.92	-209.3	1.940	03.39	-06.04	.1342	0.9570				
1.669	07.61	-203.8	1.944	03.08	-06.96	.1334	0.9573				
0.469	12.02	-035.0	2.123	-06.96	09.89	.0954	0.9043	12	165	000	4
1.069	06.61	-245.1	1.911	06.00	-02.79	.1267	0.8634				
1.669	09.86	-209.3	1.925	04.86	-08.61	.1353	0.9422				
0.469	11.53	-035.1	2.066	-06.69	09.47	.0949	0.8230	16	165	000	4
1.069	11.69	-360.0	2.409	00.00	11.69	.0638	0.9459				
1.669	11.96	-234.3	1.871	09.76	-07.04	.1376	0.8814				
0.469	16.23	-024.8	2.166	-06.96	14.80	.0669	0.6783	20	165	000	4
1.069	14.22	-017.8	2.390	-04.42	13.56	.0498	0.7168				
1.669	10.74	-247.6	1.989	09.94	-04.13	.0991	0.7623				
0.469	16.59	-013.3	2.157	-03.92	16.16	.0594	0.5939	23	165	000	4
1.069	12.20	-014.4	2.359	-03.07	11.82	.0478	0.6555				
1.669	00.03	-135.0	2.109	-00.02	-00.02	.0660	0.6118				
0.269	00.13	-124.7	1.977	-00.10	-00.07	.1290	0.9739	00	110	000	7
0.869	00.22	-090.0	1.934	-00.22	00.00	.1364	0.9635				
1.469	-00.10	-090.0	1.941	00.00	00.00	.1342	0.9579				
2.069	00.21	-106.5	1.956	-00.20	-00.06	.1321	0.9649				
0.269	05.88	-245.0	2.005	05.33	-02.49	.1241	0.9786	04	110	000	7
0.869	04.55	-256.2	1.956	04.41	-01.08	.1328	0.9701				
1.469	04.26	-245.4	1.970	03.87	-01.77	.1305	0.9746				
2.069	03.73	-240.2	1.982	03.23	-01.85	.1288	0.9801				
0.269	12.64	-242.5	2.014	11.25	-05.91	.1207	0.9647	08	110	000	7
0.869	10.58	-246.5	1.956	09.72	-04.26	.1310	0.9571				
1.469	09.74	-245.3	1.986	08.86	-04.10	.1274	0.9755				
2.069	09.23	-242.0	1.984	08.16	-04.36	.1277	0.9743				
0.269	18.57	-239.9	2.095	16.20	-09.56	.1084	0.9835	12	110	000	7
0.869	16.85	-242.5	2.010	15.03	-07.96	.1207	0.9596				
1.469	15.60	-243.6	2.009	14.04	-07.07	.1217	0.9650				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
2.069	14.88	-244.1	2.005	13.44	-06.62	.1223	0.9645				
0.269	24.19	-240.6	2.157	21.37	-12.43	.0983	0.9830	16	110	000	7
0.869	23.95	-240.0	2.018	21.04	-12.52	.1151	0.9270				
1.469	22.37	-242.3	2.089	20.02	-10.83	.1087	0.9768				
2.069	21.55	-243.8	2.066	19.51	-09.89	.1122	0.9731				
0.269	30.56	-240.2	2.238	27.12	-16.35	.0872	0.9900	20	110	000	7
0.869	29.77	-239.0	2.031	26.11	-16.41	.1092	0.8968				
1.469	27.74	-240.8	2.105	24.65	-14.38	.1056	0.9732				
2.069	27.74	-242.4	2.054	24.98	-13.69	.1111	0.9449				
0.269	35.03	-239.4	2.160	31.10	-19.63	.0891	0.8951	23	110	000	7
0.869	33.79	-238.9	1.995	29.81	-19.06	.1088	0.8449				
1.469	33.38	-241.4	2.023	30.04	-17.50	.1029	0.8341				
2.069	33.44	-243.7	2.096	30.62	-16.30	.0996	0.9049				
0.269	-00.30	-135.0	1.972	00.00	00.00	.1298	0.9722	00	115	000	7
0.869	03.12	-288.1	1.890	02.96	00.97	.1421	0.9374				
1.469	-00.40	-329.7	1.945	00.00	00.00	.1336	0.9597				
2.069	-00.19	-133.0	1.956	00.00	00.00	.1320	0.9643				
0.269	06.16	-242.8	2.014	05.48	-02.82	.1234	0.9866	04	115	000	7
0.869	08.60	-263.4	1.881	08.54	-00.99	.1424	0.9268				
1.469	04.59	-242.4	1.987	04.06	-02.13	.1283	0.9835				
2.069	04.21	-238.6	1.992	03.59	-02.19	.1272	0.9826				
0.269	12.84	-240.7	2.021	11.24	-06.36	.1202	0.9713	08	115	000	7
0.869	13.88	-250.2	1.887	13.08	-04.78	.1395	0.9159				
1.469	10.10	-242.1	1.984	08.94	-04.76	.1274	0.9725				
2.069	09.19	-240.2	2.003	07.99	-04.59	.1255	0.9865				
0.269	18.65	-239.4	2.120	16.19	-09.74	.1060	1.0007	12	115	000	7
0.869	20.13	-243.6	1.917	18.17	-09.25	.1317	0.9063				
1.469	15.81	-240.8	2.008	13.88	-07.86	.1215	0.9623				
2.069	14.98	-240.9	2.016	13.15	-07.41	.1211	0.9714				
0.269	22.16	-249.4	2.101	20.86	-08.15	.0937	0.8580	16	115	000	7
0.869	24.59	-236.4	2.017	20.86	-14.21	.1145	0.9194				
1.469	22.32	-239.3	2.090	19.44	-11.83	.1080	0.9720				
2.069	21.58	-240.8	2.060	19.04	-10.92	.1120	0.9619				
0.269	26.30	-254.4	2.263	25.45	-07.57	.0820	0.9682	20	115	000	7
0.869	28.72	-235.6	1.985	24.32	-17.20	.1162	0.8886				
1.469	27.72	-237.7	2.100	23.94	-15.68	.1052	0.9616				
2.069	28.09	-240.0	2.046	24.80	-14.94	.1096	0.9210				
0.869	34.00	-236.3	1.994	29.29	-20.51	.1079	0.8366	23	115	000	7
1.469	31.69	-237.9	2.192	27.60	-18.16	.0948	1.0005				
2.069	32.85	-239.9	2.055	29.18	-17.94	.1042	0.8881				
0.269	-00.28	-135.0	1.961	00.00	00.00	.1307	0.9625	00	120	000	7
0.869	00.08	-329.8	1.929	00.04	00.06	.1371	0.9610				
1.469	-00.32	-315.0	1.947	00.00	00.00	.1329	0.9580				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
2.069	-00.09	-115.3	1.965	00.00	00.00	.1303	0.9650				
0.269	06.46	-241.5	1.998	05.68	-03.09	.1251	0.9762	04	120	000	7
0.869	04.83	-246.1	1.952	04.41	-01.96	.1338	0.9715				
1.469	04.63	-240.5	1.971	04.03	-02.28	.1301	0.9733				
2.069	04.01	-234.7	1.989	03.27	-02.32	.1278	0.9825				
0.269	12.67	-240.8	2.042	11.10	-06.25	.1178	0.9840	08	120	000	7
0.869	11.01	-242.3	1.948	09.77	-05.16	.1320	0.9533				
1.469	09.92	-240.7	1.990	08.67	-04.89	.1266	0.9751				
2.069	09.32	-238.9	2.004	07.99	-04.84	.1252	0.9860				
0.269	16.89	-246.5	2.205	15.56	-06.90	.0984	1.0601	12	120	000	7
0.869	17.41	-236.9	2.008	14.71	-09.71	.1208	0.9573				
1.469	15.74	-238.7	2.014	13.54	-08.33	.1207	0.9653				
2.069	15.12	-238.8	2.013	13.01	-07.96	.1210	0.9666				
0.269	15.47	-242.1	1.642	13.74	-07.37	.1065	0.4819	16	120	000	7
0.869	25.33	-233.5	2.020	20.83	-15.72	.1127	0.9106				
1.469	22.57	-236.7	2.098	19.15	-12.85	.1065	0.9708				
2.069	21.73	-238.5	2.061	18.76	-11.76	.1109	0.9537				
0.269	20.80	-244.0	1.565	18.85	-09.45	.1021	0.4123	20	120	000	7
0.869	29.76	-232.5	2.045	24.39	-19.19	.1093	0.9175				
1.469	28.27	-234.8	2.088	23.72	-17.22	.1043	0.9363				
2.069	28.44	-237.7	2.025	24.59	-16.14	.1101	0.8951				
0.269	26.03	-255.1	1.979	25.26	-07.15	.0850	0.6435	23	120	000	7
0.869	33.86	-232.6	1.995	28.05	-22.17	.1086	0.8430				
1.469	32.07	-235.0	2.076	27.16	-19.76	.1020	0.8980				
2.069	32.36	-236.9	2.018	27.96	-19.08	.1082	0.8710				
0.269	-00.30	-135.0	1.958	00.00	00.00	.1310	0.9607	00	125	000	7
0.869	00.48	-327.3	1.921	00.25	00.40	.1379	0.9542				
1.469	-00.45	-225.0	1.940	00.00	00.00	.1332	0.9501				
2.069	-00.19	-133.0	1.966	00.00	00.00	.1301	0.9657				
0.269	06.34	-240.9	1.996	05.54	-03.09	.1256	0.9770	04	125	000	7
0.869	04.67	-243.9	1.945	04.19	-02.05	.1350	0.9693				
1.469	04.51	-238.8	1.988	03.85	-02.34	.1281	0.9839				
2.069	04.07	-225.0	2.000	02.88	-02.88	.1265	0.9895				
0.269	11.66	-246.6	2.112	10.72	-04.68	.1107	1.0320	08	125	000	7
0.869	11.03	-240.8	1.945	09.65	-05.43	.1325	0.9515				
1.469	09.72	-239.1	1.994	08.36	-05.02	.1261	0.9775				
2.069	09.38	-236.0	1.998	07.79	-05.27	.1256	0.9800				
0.269	13.21	-248.9	2.048	12.35	-04.83	.1055	0.8897	12	125	000	7
0.869	17.91	-232.9	2.013	14.45	-11.03	.1199	0.9572				
1.469	15.71	-236.1	2.018	13.14	-08.91	.1198	0.9644				
2.069	15.00	-236.7	2.007	12.62	-08.36	.1216	0.9615				
0.269	06.32	-221.6	1.607	04.20	-04.73	.1096	0.4706	16	125	000	7
0.869	26.10	-230.0	2.039	20.57	-17.47	.1104	0.9183				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.469	22.82	-233.3	2.095	18.64	-14.11	.1061	0.9629				
2.069	21.62	-235.7	2.047	18.12	-12.59	.1120	0.9426				
0.269	07.05	-216.0	1.525	04.15	-05.71	.0964	0.3671	20	125	000	7
0.869	30.82	-229.0	2.130	24.24	-21.37	.0994	0.9526				
1.469	29.16	-231.9	2.117	23.70	-18.99	.0998	0.9373				
2.069	29.02	-236.0	2.044	24.69	-17.23	.1067	0.8942				
0.269	11.56	-232.8	1.597	09.25	-07.04	.0897	0.3794	23	125	000	7
0.869	35.33	-227.8	2.097	27.70	-25.46	.0999	0.9093				
1.469	32.09	-231.3	2.130	26.07	-21.40	.0984	0.9439				
2.069	32.88	-234.7	2.038	27.81	-20.48	.1051	0.8728				
0.669	00.11	-124.7	2.007	-00.09	-00.06	.1266	1.0013	00	140	000	7
1.269	00.57	-315.0	1.919	00.40	00.40	.1365	0.9423				
1.869	-00.45	-360.0	1.942	00.00	00.00	.1326	0.9480				
0.669	04.03	-225.0	2.019	02.85	-02.85	.1247	1.0052	04	140	000	7
1.269	04.28	-234.0	1.936	03.46	-02.51	.1343	0.9515				
1.869	03.89	-225.0	1.984	02.75	-02.75	.1277	0.9747				
0.669	12.02	-237.0	2.004	10.12	-06.61	.1232	0.9700	08	140	000	7
1.269	09.93	-236.7	1.952	08.32	-05.49	.1308	0.9500				
1.869	08.76	-225.3	2.009	06.25	-06.18	.1248	0.9902				
0.669	19.62	-216.9	2.198	12.08	-15.91	.0926	0.9875	12	140	000	7
1.269	17.78	-234.6	2.033	14.64	-10.52	.1166	0.9602				
1.869	14.34	-235.9	2.041	11.95	-08.15	.1189	0.9913				
0.669	19.55	-233.7	2.147	15.97	-11.87	.0715	0.7038	16	140	000	7
1.269	26.36	-231.5	2.074	21.19	-17.14	.1026	0.9012				
1.869	21.05	-237.0	2.135	17.88	-11.83	.1031	0.9960				
0.669	22.54	-219.3	2.044	14.72	-17.80	.0771	0.6459	20	140	000	7
1.269	35.66	-227.2	2.229	27.76	-25.98	.0829	0.9278				
1.869	30.21	-236.6	2.285	25.92	-17.77	.0810	0.9892				
0.669	26.30	-228.1	2.188	20.19	-18.26	.0618	0.6482	23	140	000	7
1.269	38.87	-225.8	2.310	30.02	-29.33	.0756	0.9604				
1.869	33.13	-235.4	2.452	28.24	-20.33	.0670	1.0615				
0.669	-00.06	-149.7	1.982	00.00	00.00	.1293	0.9840	00	145	000	7
1.269	-00.60	-225.0	1.956	00.00	00.00	.1319	0.9640				
1.869	00.11	-300.2	1.916	00.09	00.05	.1354	0.9300				
0.669	04.10	-225.0	2.023	02.90	-02.90	.1241	1.0070	04	145	000	7
1.269	04.24	-270.0	1.996	04.24	00.00	.1269	0.9874				
1.869	04.40	-225.0	1.961	03.11	-03.11	.1302	0.9586				
0.669	11.61	-235.8	2.026	09.64	-06.58	.1199	0.9764	08	145	000	7
1.269	09.82	-236.4	1.943	08.20	-05.47	.1318	0.9442				
1.869	09.01	-225.0	1.984	06.39	-06.39	.1274	0.9721				
0.669	19.61	-211.9	2.295	10.66	-16.82	.0809	1.0042	12	145	000	7

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
1.269	17.69	-235.3	2.005	14.69	-10.29	.1191	0.9389				
1.869	13.97	-232.4	2.011	11.15	-08.63	.1221	0.9722				
0.669	11.90	-217.3	1.974	07.27	-09.51	.0782	0.5874	16	145	000	7
1.269	27.03	-230.7	2.099	21.54	-17.90	.0979	0.8946				
1.869	20.44	-235.2	2.093	17.01	-12.00	.1064	0.9621				
0.669	20.60	-208.1	2.178	10.04	-18.34	.0682	0.7042	20	145	000	7
1.269	36.01	-226.3	2.211	27.72	-26.66	.0792	0.8618				
1.869	28.23	-236.5	2.078	24.11	-16.50	.0917	0.8104				
0.669	20.59	-215.0	2.319	12.16	-17.10	.0524	0.6749	23	145	000	7
1.269	39.35	-225.0	2.382	30.10	-30.10	.0673	0.9562				
1.869	33.88	-234.3	2.398	28.60	-21.39	.0661	0.9627				
0.669	-00.12	-135.0	1.963	00.00	00.00	.1307	0.9653	00	150	000	7
1.269	-00.60	-135.0	1.970	00.00	00.00	.1290	0.9637				
1.869	00.68	-292.9	1.965	00.62	00.26	.1321	0.9783				
0.669	04.08	-270.0	1.991	04.08	00.00	.1269	0.9793	04	150	000	7
1.269	04.27	-270.0	1.992	04.27	00.00	.1273	0.9840				
1.869	04.56	-225.0	1.959	03.22	-03.22	.1323	0.9714				
0.669	11.02	-239.2	2.021	09.49	-05.69	.1197	0.9675	08	150	000	7
1.269	08.82	-225.0	2.002	06.26	-06.26	.1267	0.9940				
1.869	08.80	-225.0	1.972	06.25	-06.25	.1296	0.9711				
0.669	20.16	-211.9	2.202	10.97	-17.31	.0685	0.7344	12	150	000	7
1.269	16.81	-237.8	2.021	14.33	-09.14	.1195	0.9662				
1.869	13.53	-227.6	1.975	10.07	-09.21	.1267	0.9539				
0.669	13.05	-205.0	2.064	05.59	-11.86	.0789	0.6825	16	150	000	7
1.269	26.33	-228.4	2.125	20.30	-18.18	.0930	0.8836				
1.869	19.66	-233.6	2.028	16.04	-11.97	.1128	0.9221				
0.669	13.31	-205.0	2.490	05.71	-12.10	.0519	0.8734	20	150	000	7
1.269	34.29	-229.1	2.159	27.26	-24.05	.0715	0.7178				
1.869	27.38	-234.0	1.956	22.73	-16.93	.1090	0.7969				
0.669	15.43	-214.0	2.432	08.77	-12.88	.0459	0.7054	23	150	000	7
1.269	40.06	-223.3	2.525	29.97	-31.46	.0547	0.9708				
1.869	34.78	-232.1	2.112	28.72	-23.10	.0756	0.7051				
0.669	-00.27	-210.0	1.957	00.00	00.00	.1318	0.9645	00	155	000	7
1.269	-00.60	-135.0	1.977	00.00	00.00	.1289	0.9738				
1.869	00.01	-225.0	1.965	00.00	00.00	.1301	0.9635				
0.669	03.65	-270.0	1.988	03.65	00.00	.1279	0.9825	04	155	000	7
1.269	03.94	-210.4	2.008	01.99	-03.39	.1254	0.9933				
1.869	04.22	-216.0	1.983	02.48	-03.41	.1279	0.9745				
0.669	10.29	-243.1	1.955	09.19	-04.69	.1241	0.9056	08	155	000	7
1.269	08.45	-225.0	1.974	06.00	-06.00	.1284	0.9653				
1.869	09.05	-225.0	1.942	07.86	-07.86	.1323	0.9461				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.669	05.91	-225.0	2.573	04.18	-04.18	.0491	0.9403	12	155	000	7
1.269	14.58	-237.4	1.979	12.35	-07.97	.1227	0.9295				
1.869	12.86	-270.0	1.937	12.86	00.00	.1316	0.9336				
0.669	10.04	-186.5	2.421	01.14	-09.97	.0619	0.9354	16	155	000	7
1.269	25.02	-228.8	2.090	19.35	-17.08	.0926	0.8334				
1.869	18.38	-232.8	1.987	14.82	-11.35	.1194	0.9160				
0.669	05.46	-180.0	2.403	00.00	-05.46	.0442	0.6489	20	155	000	7
1.269	28.62	-225.0	2.166	21.09	-21.09	.0597	0.6056				
1.869	26.09	-232.6	2.013	21.25	-16.56	.1095	0.8746				
0.669	06.65	-212.1	2.425	03.54	-05.64	.0411	0.6249	23	155	000	7
1.269	31.99	-218.2	2.119	21.12	-26.14	.0640	0.6032				
1.869	36.22	-220.3	1.651	25.34	-29.18	.1165	0.5342				
0.469	-00.19	-227.0	1.944	00.00	00.00	.1329	0.9534	00	170	000	7
1.069	00.02	-225.0	1.958	00.01	-00.01	.1312	0.9618				
1.669	-00.32	-270.0	1.967	00.00	00.00	.1308	0.9723				
0.469	01.95	-218.8	1.971	01.22	-01.52	.1296	0.9698	04	170	000	7
1.069	04.44	-205.7	1.966	01.92	-04.00	.1307	0.9697				
1.669	03.96	-197.4	1.996	01.18	-03.77	.1276	0.9927				
0.469	03.11	-311.5	1.984	02.33	02.06	.1266	0.9659	08	170	000	7
1.069	06.50	-206.1	1.987	02.86	-05.84	.1288	0.9879				
1.669	07.90	-195.8	1.985	02.16	-07.60	.1290	0.9865				
0.469	10.51	-025.6	2.231	-04.58	09.49	.0938	1.0531	12	170	000	7
1.069	04.44	-240.7	2.004	03.87	-02.17	.1248	0.9825				
1.669	09.24	-204.1	1.944	03.80	-08.44	.1334	0.9573				
0.469	11.50	-026.1	2.235	-05.11	10.35	.0866	0.9781	16	170	000	7
1.069	14.16	000.0	2.479	00.00	14.16	.0713	1.1787				
1.669	07.85	-228.8	1.946	05.92	-05.18	.1327	0.9550				
0.469	16.74	-016.4	2.265	-04.85	16.09	.0652	0.7716	20	170	000	7
1.069	18.79	-010.5	2.572	-03.54	18.49	.0507	0.9681				
1.669	03.64	-315.0	2.379	02.57	02.57	.0828	1.1712				
0.469	16.50	-000.5	2.320	-00.14	16.49	.0559	0.7209	23	170	000	7
1.069	17.40	-008.2	2.702	-02.55	17.23	.0435	1.0159				
1.669	05.01	-020.8	2.551	-01.78	04.68	.0581	1.0750				
0.469	-00.09	-270.0	1.941	00.00	00.00	.1333	0.9516	00	175	000	7
1.069	00.34	-222.7	1.961	00.23	-00.25	.1310	0.9647				
1.669	00.13	-214.0	1.970	00.07	-00.10	.1307	0.9762				
0.469	01.50	-209.4	1.978	00.73	-01.30	.1293	0.9777	04	175	000	7
1.069	04.40	-194.6	2.000	01.11	-04.25	.1270	0.9936				
1.669	04.16	-185.2	2.000	00.37	-04.14	.1273	0.9957				
0.469	01.58	-330.1	1.985	00.78	01.37	.1275	0.9746	08	175	000	7
1.069	06.40	-188.6	1.986	00.96	-06.32	.1295	0.9913				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
1.669	07.48	-180.0	1.980	00.00	-07.48	.1297	0.9836				
0.469	09.55	000.0	2.174	00.00	09.55	.0997	1.0234	12	175	000	7
1.069	01.62	-223.1	1.975	01.10	-01.18	.1296	0.9757				
1.669	08.58	-135.0	1.951	-06.08	-06.08	.1337	0.9697				
0.469	12.18	-360.0	2.187	00.00	12.18	.0902	0.9456	16	175	000	7
1.069	15.42	-360.0	2.233	00.00	15.42	.0883	0.9945				
1.669	04.01	-207.4	1.902	01.84	-03.56	.1394	0.9372				
0.469	16.96	-360.0	2.154	00.00	16.96	.0710	0.7063	20	175	000	7
1.069	22.07	000.0	2.280	00.00	22.07	.0633	0.7664				
1.669	10.75	000.0	2.064	00.00	10.75	.1060	0.9162				
0.469	19.40	-360.0	2.126	00.00	19.40	.0652	0.6216	23	175	000	7
1.069	22.14	-360.0	2.441	00.00	22.14	.0515	0.8018				
1.669	18.32	000.0	2.249	00.00	18.32	.0693	0.8008				
0.469	00.04	-225.0	1.939	00.02	-00.02	.1337	0.9520	00	180	000	7
1.069	00.35	-221.5	1.956	00.23	-00.26	.1315	0.9610				
1.669	00.09	-210.2	1.962	00.04	-00.07	.1312	0.9676				
0.469	01.55	-135.0	1.967	-01.09	-01.09	.1307	0.9716	04	180	000	7
1.069	03.89	-135.0	1.988	-02.75	-02.75	.1282	0.9847				
1.669	04.00	-180.0	1.988	00.00	-04.00	.1287	0.9889				
0.469	01.45	-030.0	1.975	-00.72	01.25	.1282	0.9648	08	180	000	7
1.069	05.70	-180.0	1.991	00.00	-05.70	.1284	0.9908				
1.669	07.49	-180.0	1.986	00.00	-07.49	.1290	0.9876				
0.469	10.81	-340.6	2.127	03.62	10.21	.1010	0.9634	12	180	000	7
1.069	02.10	-180.0	1.951	00.00	-02.10	.1297	0.9403				
1.669	09.03	-174.1	1.942	-00.93	-08.98	.1339	0.9573				
0.469	12.86	-335.2	2.148	05.47	11.70	.0898	0.8853	16	180	000	7
1.069	16.75	000.0	2.118	00.00	16.75	.0865	0.8138				
1.669	05.15	-135.0	1.852	-03.64	-03.64	.1402	0.8722				
0.469	18.10	-342.7	2.107	05.55	17.33	.0698	0.6453	20	180	000	7
1.069	23.51	-355.9	2.156	01.78	23.45	.0604	0.6031				
1.669	09.12	-026.5	1.974	-04.09	08.17	.1043	0.7842				
0.469	20.87	-351.8	2.008	03.11	20.67	.0668	0.5289	23	180	000	7
1.069	23.80	-349.8	2.162	04.46	23.46	.0536	0.5399				
1.669	14.09	-354.1	1.865	01.47	14.01	.0742	0.4710				
0.469	-00.11	-270.0	1.938	00.00	00.00	.1340	0.9524	00	185	000	7
1.069	00.33	-270.0	1.956	00.33	00.00	.1318	0.9632				
1.669	-00.11	-207.0	1.965	00.00	00.00	.1316	0.9746				
0.469	01.66	-151.1	1.960	-00.80	-01.45	.1314	0.9659	04	185	000	7
1.069	04.33	-180.0	1.963	00.00	-04.33	.1311	0.9688				
1.669	04.17	-174.4	1.979	-00.40	-04.15	.1297	0.9825				
0.469	03.22	-045.0	1.972	-02.27	02.27	.1271	0.9518	08	185	000	7

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.069	06.03	-157.4	1.983	-02.32	-05.57	.1290	0.9824				
1.669	07.86	-166.2	1.981	-01.88	-07.63	.1297	0.9852				
0.469	12.97	-326.9	2.038	07.16	10.92	.0993	0.8241	12	185	000	7
1.069	05.22	-110.0	1.863	-04.90	-01.78	.1266	0.8008				
1.669	09.38	-153.4	1.951	-04.23	-08.40	.1327	0.9628				
0.469	13.22	-318.7	2.090	08.81	10.00	.0873	0.7858	16	185	000	7
1.069	16.36	-005.6	1.882	-01.64	16.28	.0772	0.5033				
1.669	10.74	-126.4	1.873	-08.68	-06.42	.1364	0.8770				
0.469	16.30	-330.3	2.083	08.24	14.25	.0652	0.5813	20	185	000	7
1.069	15.77	-342.5	2.057	04.85	10.46	.0533	0.4553				
1.669	11.82	-111.9	1.961	-10.98	-04.46	.0931	0.6857				
0.469	17.88	-338.6	1.979	06.71	16.71	.0597	0.4520	23	185	000	7
1.069	13.65	-337.0	1.966	05.42	12.60	.0534	0.3962				
1.669	05.63	-149.9	1.930	-02.83	-04.87	.0675	0.4738				
0.269	-00.06	-120.3	1.940	00.00	00.00	.1331	0.9487	00	130	000	8
0.869	00.87	-331.5	1.912	00.41	00.76	.1372	0.9363				
1.469	-00.31	-090.0	1.934	00.00	00.00	.1341	0.9472				
2.069	00.22	-073.5	1.959	-00.21	00.06	.1308	0.9600				
0.269	05.39	-243.5	2.003	04.82	-02.41	.1248	0.9807	04	130	000	8
0.869	04.39	-242.9	1.941	03.91	-02.00	.1356	0.9682				
1.469	03.77	-229.0	1.977	02.84	-02.47	.1290	0.9744				
2.069	03.54	-225.0	1.993	02.50	-02.50	.1274	0.9866				
0.269	09.88	-245.2	1.970	08.98	-04.17	.1150	0.8588	08	130	000	8
0.869	10.77	-240.1	1.938	09.36	-05.41	.1333	0.9469				
1.469	09.52	-237.0	1.988	08.00	-05.21	.1262	0.9693				
2.069	09.21	-230.0	1.993	07.08	-05.95	.1261	0.9765				
0.269	07.05	-241.1	1.670	06.17	-03.42	.1172	0.5529	12	130	000	8
0.869	18.71	-229.4	2.012	14.42	-12.42	.1192	0.9507				
1.469	15.61	-233.9	2.019	12.72	-09.34	.1195	0.9629				
2.069	14.93	-234.2	1.998	12.20	-08.86	.1228	0.9580				
0.269	04.73	-180.0	1.847	00.00	-04.73	.1073	0.6625	16	130	000	8
0.869	26.81	-226.8	2.044	20.22	-19.08	.1076	0.9017				
1.469	22.78	-231.2	2.104	18.12	-14.74	.1048	0.9642				
2.069	21.53	-234.1	2.036	17.72	-13.02	.1128	0.9336				
0.269	04.04	-144.6	1.776	-02.34	-03.29	.0903	0.4999	20	130	000	8
0.869	31.79	-223.3	2.135	23.02	-24.27	.0951	0.9189				
1.469	30.04	-229.4	2.166	23.70	-20.62	.0930	0.9433				
2.069	29.62	-234.8	2.051	24.91	-18.14	.1033	0.8749				
0.269	06.00	-135.0	1.799	-04.25	-04.25	.0840	0.4816	23	130	000	8
0.869	36.54	-270.0	2.075	36.54	00.00	.0980	0.8619				
1.469	33.28	-228.5	2.154	26.17	-23.50	.0927	0.9221				
2.069	33.65	-233.3	2.028	28.08	-21.69	.1029	0.8409				
0.269	-00.54	-225.0	1.931	00.00	00.00	.1350	0.9490	00	135	000	8

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	ϕ	RUN
0.869	-00.40	-030.6	1.929	00.00	00.00	.1347	0.9440				
1.469	-00.40	-329.9	1.924	00.00	00.00	.1358	0.9449				
2.069	-00.26	-119.8	1.960	00.00	00.00	.1309	0.9624				
0.269	06.14	-251.3	2.019	05.81	-01.97	.1230	0.9907	04	135	000	8
0.869	04.00	-237.9	1.986	03.39	-02.12	.1303	0.9977				
1.469	04.19	-225.0	1.970	02.96	-02.96	.1301	0.9717				
2.069	04.04	-270.0	2.002	04.04	00.00	.1261	0.9899				
0.269	08.46	-218.3	1.746	05.26	-06.65	.1195	0.6322	08	135	000	8
0.869	11.10	-239.9	1.943	09.63	-05.61	.1329	0.9521				
1.469	09.31	-232.4	1.981	07.40	-05.71	.1271	0.9653				
2.069	09.30	-225.0	1.995	06.60	-06.60	.1260	0.9780				
0.269	02.94	-194.5	1.619	00.73	-02.84	.1235	0.5398	12	135	000	8
0.869	19.82	-225.0	2.067	14.29	-14.29	.1131	0.9824				
1.469	15.64	-230.6	2.017	12.20	-10.07	.1192	0.9575				
2.069	14.88	-229.5	1.997	11.42	-09.79	.1229	0.9572				
0.269	05.88	-148.3	1.958	-03.09	-05.00	.1049	0.7689	16	135	000	8
0.869	28.11	-225.0	2.086	20.69	-20.69	.1013	0.9068				
1.469	23.18	-228.4	2.130	17.75	-15.86	.1013	0.9718				
2.069	21.49	-230.8	2.038	16.96	-13.97	.1124	0.9327				
0.269	04.37	-129.8	1.877	-03.35	-02.80	.0919	0.5942	20	135	000	8
0.869	31.57	-218.4	2.197	20.89	-25.71	.0883	0.9394				
1.469	31.26	-225.8	2.275	23.51	-22.93	.0832	1.0010				
2.069	29.94	-233.0	2.110	24.70	-19.11	.0965	0.8968				
0.269	08.41	-162.1	1.951	-02.60	-08.00	.0830	0.6021	23	135	000	8
0.869	35.66	-220.4	2.165	24.94	-28.65	.0866	0.8766				
1.469	34.45	-270.0	2.252	34.45	00.00	.0834	0.9580				
2.069	34.44	-231.1	2.102	28.08	-23.29	.0942	0.8641				
0.269	-00.54	-225.0	1.937	00.00	00.00	.1356	0.9616	00	140	000	8
0.869	-00.45	-360.0	1.942	00.00	00.00	.1342	0.9596				
1.469	-00.09	-315.0	1.903	00.00	00.00	.1380	0.9294				
2.069	-00.10	-135.0	1.966	00.00	00.00	.1299	0.9643				
0.269	06.81	-259.7	1.779	06.70	-01.22	.1301	0.7238	04	140	000	8
0.869	04.07	-231.7	1.973	03.19	-02.52	.1300	0.9757				
1.469	04.21	-225.0	1.954	02.98	-02.98	.1315	0.9584				
2.069	04.29	-270.0	1.998	04.29	00.00	.1261	0.9835				
0.269	11.22	-204.7	1.844	04.73	-10.21	.1159	0.7124	08	140	000	8
0.869	10.44	-236.3	1.974	08.71	-05.83	.1278	0.9603				
1.469	09.24	-225.5	1.975	06.61	-06.50	.1281	0.9640				
2.069	09.16	-225.0	2.007	06.50	-06.50	.1252	0.9900				
0.269	04.06	-156.9	1.943	-01.59	-03.73	.1179	0.8440	12	140	000	8
0.869	21.43	-270.0	2.078	21.43	00.00	.1085	0.9588				
1.469	15.79	-227.0	2.004	11.68	-10.91	.1209	0.9523				
2.069	14.70	-225.3	2.017	10.56	-10.45	.1225	0.9839				
0.269	05.79	-180.0	2.139	00.00	-05.79	.0964	0.9371	16	140	000	8

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.869	29.46	-270.0	1.972	29.46	00.00	.1019	0.7635				
1.469	24.07	-226.4	2.124	17.92	-17.12	.1000	0.9497				
2.069	20.85	-228.5	2.069	15.92	-14.16	.1113	0.9696				
0.269	03.77	-135.0	2.159	-02.67	-02.67	.0846	0.8482	20	140	000	8
0.869	33.16	-216.9	2.054	21.42	-27.58	.0894	0.7609				
1.469	32.94	-224.7	2.227	24.50	-24.72	.0824	0.9198				
2.069	29.75	-231.4	2.139	24.06	-19.62	.0945	0.9182				
0.669	-00.60	-090.0	1.934	00.00	00.00	.1342	0.9474	00	160	000	8
1.269	-00.28	-360.0	1.956	00.00	00.00	.1309	0.9566				
1.869	-00.60	-090.0	1.958	00.00	00.00	.1301	0.9538				
0.669	02.99	-270.0	1.972	02.99	00.00	.1295	0.9703	04	160	000	8
1.269	03.36	-209.6	1.982	01.66	-02.92	.1278	0.9724				
1.869	03.77	-209.4	2.004	01.85	-03.28	.1258	0.9904				
0.669	08.14	-245.8	1.965	07.43	-03.35	.1259	0.9324	08	160	000	8
1.269	07.69	-213.1	1.978	04.21	-06.45	.1286	0.9721				
1.869	08.08	-210.3	1.982	04.09	-06.98	.1283	0.9764				
0.669	03.58	-333.1	2.473	01.62	03.19	.0522	0.8551	12	160	000	8
1.269	12.87	-238.1	1.899	10.97	-06.88	.1272	0.8506				
1.869	11.53	-216.3	1.971	06.88	-09.33	.1295	0.9687				
0.669	06.50	-131.1	2.236	-04.90	-04.28	.0557	0.6304	16	160	000	8
1.269	24.68	-232.0	1.840	19.90	-15.79	.0990	0.6043				
1.869	16.11	-232.6	2.017	12.92	-09.95	.1229	0.9871				
0.669	04.31	-071.1	2.164	-04.07	01.39	.0462	0.4671	20	160	000	8
1.269	20.93	-220.3	2.047	13.89	-16.26	.0582	0.4895				
1.869	24.57	-233.2	2.035	20.10	-15.31	.1100	0.9093				
0.669	-00.23	-270.0	2.261	00.00	00.00	.0416	0.4892	23	160	000	8
1.269	25.65	-213.0	1.849	14.65	-21.93	.0656	0.4066				
1.869	40.16	-217.8	1.354	27.34	-33.69	.1777	0.5301				
0.669	-00.43	-135.0	1.934	00.00	00.00	.1343	0.9485	00	165	000	8
1.269	-00.43	-225.0	1.936	00.00	00.00	.1336	0.9467				
1.869	-00.25	-239.8	1.962	00.00	00.00	.1313	0.9682				
0.669	02.95	-213.6	1.965	01.63	-02.45	.1304	0.9660	04	165	000	8
1.269	03.75	-209.0	1.974	01.82	-03.28	.1295	0.9735				
1.869	04.12	-206.9	1.986	01.86	-03.67	.1284	0.9831				
0.669	05.70	-244.5	1.981	05.14	-02.46	.1277	0.9700	08	165	000	8
1.269	07.00	-209.6	1.976	03.47	-06.09	.1298	0.9788				
1.869	08.01	-205.7	1.981	03.49	-07.22	.1290	0.9800				
0.669	10.74	000.0	2.460	00.00	10.74	.0690	1.1079	12	165	000	8
1.269	08.14	-235.8	2.014	06.74	-04.59	.1229	0.9826				
1.869	10.62	-210.3	1.969	05.40	-09.19	.1299	0.9684				
0.669	11.06	-090.0	2.512	-11.06	00.00	.0558	0.9721	16	165	000	8

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
1.269	12.98	-257.8	2.315	12.69	-02.78	.0805	1.0302				
1.869	13.68	-225.8	1.938	09.89	-09.63	.1318	0.9362				
0.669	11.14	-031.7	2.488	-05.90	09.51	.0432	0.7239	20	165	000	8
1.269	03.00	-240.3	2.550	02.60	-01.48	.0492	0.9084				
1.869	22.14	-238.2	2.026	19.07	-12.10	.1092	0.8899				
0.669	07.54	-024.0	2.570	-03.08	06.89	.0393	0.7489	23	165	000	8
1.269	03.35	-270.0	2.412	03.35	00.00	.0482	0.7184				
1.869	25.67	-227.5	1.951	19.51	-17.98	.0819	0.5942				
0.669	-00.09	-205.3	1.943	00.00	00.00	.1330	0.9528	00	170	000	8
1.269	-00.45	-225.0	1.940	00.00	00.00	.1334	0.9511				
1.869	-00.19	-227.0	1.943	00.00	00.00	.1337	0.9577				
0.669	02.69	-209.7	1.973	01.33	-02.33	.1294	0.9710	04	170	000	8
1.269	03.66	-207.1	1.971	01.66	-03.25	.1304	0.9758				
1.869	04.39	-201.4	1.981	01.60	-04.08	.1294	0.9831				
0.669	03.61	-240.0	1.969	03.12	-01.80	.1299	0.9686	08	170	000	8
1.269	06.57	-207.6	1.978	03.05	-05.82	.1299	0.9822				
1.869	08.07	-200.1	1.971	02.78	-07.58	.1304	0.9758				
0.669	10.92	000.0	2.405	00.00	10.92	.0826	1.2182	12	170	000	8
1.269	06.82	-225.0	1.984	04.83	-04.83	.1284	0.9800				
1.869	10.15	-205.0	1.962	04.32	-09.21	.1313	0.9682				
0.669	14.27	-027.4	2.435	-06.67	12.72	.0648	1.0011	16	170	000	8
1.269	07.60	-306.7	2.381	06.10	04.55	.0851	1.2080				
1.869	11.10	-270.0	1.931	11.10	00.00	.1354	0.9519				
0.669	17.48	-024.1	2.549	-07.32	16.03	.0445	0.8203	20	170	000	8
1.269	07.27	-000.0	2.565	00.00	07.27	.0577	1.0919				
1.869	14.58	-242.1	2.145	12.94	-06.93	.1068	1.0478				
0.469	-00.13	-225.0	1.925	00.00	00.00	.1358	0.9456	00	190	000	8
1.069	00.01	-225.0	1.942	00.00	00.00	.1336	0.9556				
1.669	-00.40	-210.6	1.954	00.00	00.00	.1326	0.9658				
0.469	02.03	-148.5	1.960	-01.06	-01.73	.1314	0.9661	04	190	000	8
1.069	03.94	-162.7	1.966	-01.17	-03.76	.1312	0.9735				
1.669	03.62	-160.8	1.980	-01.19	-03.41	.1298	0.9841				
0.469	06.61	-049.6	1.900	-05.04	04.29	.1254	0.8404	08	190	000	8
1.069	06.30	-150.6	1.987	-03.10	-05.49	.1287	0.9867				
1.669	07.66	-154.4	1.971	-03.32	-06.91	.1307	0.9775				
0.469	15.51	-311.4	1.967	11.75	10.39	.0930	0.6912	12	190	000	8
1.069	09.38	-107.1	1.905	-08.97	-02.78	.1220	0.8239				
1.669	10.50	-149.1	1.941	-05.43	-09.03	.1332	0.9507				
0.469	13.38	-300.8	2.075	11.54	06.94	.0834	0.7332	16	190	000	8
1.069	12.39	-079.5	1.822	-12.18	02.29	.0707	0.4201				
1.669	14.99	-126.7	1.899	-12.11	-09.09	.1317	0.8807				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_\infty = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	ϕ	RUN
0.469	13.55	-316.3	2.010	09.45	09.88	.0648	0.5151	20	190	000	8
1.069	02.78	-028.2	1.977	-01.31	02.45	.0523	0.3953				
1.669	22.60	-125.5	2.027	-18.72	-13.58	.0896	0.7313				
0.469	14.15	-331.8	1.878	06.79	12.52	.0590	0.3824	23	190	000	8
1.069	02.39	-353.5	1.974	00.27	02.37	.0523	0.3928				
1.669	17.58	-146.9	2.153	-09.81	-14.86	.0632	0.6277				
0.469	-00.05	-239.8	1.926	00.00	00.00	.1357	0.9469	00	195	000	8
1.069	00.16	-214.4	1.941	00.09	-00.13	.1339	0.9556				
1.669	-00.10	-206.7	1.953	00.00	00.00	.1328	0.9658				
0.469	02.76	-135.0	1.955	-01.95	-01.95	.1316	0.9602	04	195	000	8
1.069	03.87	-153.4	1.954	-01.73	-03.46	.1310	0.9547				
1.669	04.00	-151.6	1.973	-01.90	-03.51	.1305	0.9790				
0.469	08.81	-060.7	1.807	-07.69	04.33	.1182	0.6861	08	195	000	8
1.069	07.00	-146.9	1.981	-03.83	-05.87	.1289	0.9792				
1.669	08.09	-150.4	1.961	-04.01	-07.04	.1318	0.9706				
0.469	15.42	-225.0	1.931	11.03	-11.03	.0838	0.5890	12	195	000	8
1.069	13.70	-112.7	1.975	-12.67	-05.37	.1177	0.8857				
1.669	11.77	-144.2	1.947	-06.94	-09.59	.1314	0.9468				
0.469	12.22	-269.0	2.153	12.21	-00.21	.0770	0.7650	16	195	000	8
1.069	21.20	-127.7	2.189	-17.06	-13.34	.0662	0.6958				
1.669	18.73	-131.8	1.991	-14.18	-12.73	.1188	0.9170				
0.469	09.76	-280.3	2.067	09.60	01.76	.0593	0.5146	20	195	000	8
1.069	14.67	-140.0	2.088	-09.55	-11.33	.0499	0.4475				
1.669	30.53	-135.0	2.088	-22.63	-22.63	.0944	0.8474				
0.469	06.89	-305.0	1.913	05.65	03.96	.0539	0.3683	23	195	000	8
1.069	13.20	-145.7	2.118	-07.52	-10.96	.0510	0.4797				
1.669	36.32	-147.2	1.900	-21.71	-31.71	.0939	0.6291				
0.469	-00.05	-239.7	1.919	00.00	00.00	.1364	0.9411	00	200	000	8
1.069	00.24	-270.0	1.932	00.24	00.00	.1343	0.9457				
1.669	00.03	-135.0	1.931	-00.02	-00.02	.1340	0.9424				
0.469	03.28	-180.0	1.959	00.00	-03.28	.1313	0.9636	04	200	000	8
1.069	03.94	-150.8	1.969	-01.92	-03.44	.1301	0.9698				
1.669	04.06	-150.2	1.969	-02.02	-03.52	.1299	0.9689				
0.469	10.00	-088.9	1.824	-09.99	00.19	.1119	0.6668	08	200	000	8
1.069	07.74	-135.1	1.972	-05.48	-05.49	.1289	0.9658				
1.669	08.28	-149.1	1.954	-04.27	-07.11	.1315	0.9578				
0.469	15.45	-237.5	1.944	13.12	-08.44	.0841	0.6035	12	200	000	8
1.069	15.94	-117.2	1.995	-14.25	-07.43	.1144	0.8886				
1.669	12.82	-137.9	1.953	-08.67	-09.58	.1300	0.9453				
0.469	12.04	-239.4	2.104	10.40	-06.19	.0800	0.7366	16	200	000	8
1.069	24.25	-131.7	2.197	-18.58	-16.68	.0717	0.7631				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	ϕ	RUN
1.669	20.28	-133.4	2.016	-15.02	-14.24	.1150	0.9223				
0.469	09.41	-238.8	2.049	08.06	-04.90	.0607	0.5128	20	200	000	8
1.069	24.07	-141.2	2.108	-15.63	-19.19	.0518	0.4793				
1.669	29.97	-136.8	2.089	-21.54	-22.79	.0994	0.8930				
0.269	09.60	-161.1	2.240	-03.13	-09.09	.0727	0.8277	23	140	000	9
0.869	35.50	-219.3	1.855	24.31	-28.89	.1022	0.6391				
1.469	35.84	-224.3	2.283	26.76	-27.33	.0759	0.9242				
2.069	34.16	-229.2	2.144	27.18	-23.91	.0894	0.8767				
0.269	-00.54	-270.0	1.929	00.00	00.00	.1360	0.9529	00	145	000	9
0.869	-00.11	-063.0	1.977	00.00	00.00	.1296	0.9790				
1.469	00.38	-313.3	1.920	00.27	00.26	.1360	0.9400				
2.069	-00.31	-135.0	1.937	00.00	00.00	.1329	0.9431				
0.269	06.47	-270.0	1.717	06.47	00.00	.1304	0.6601	04	145	000	9
0.869	03.78	-229.2	1.977	02.86	-02.47	.1296	0.9784				
1.469	04.13	-225.0	1.934	02.92	-02.92	.1340	0.9465				
2.069	04.25	-211.4	1.992	02.21	-03.62	.1268	0.9797				
0.269	10.43	-205.5	1.889	04.53	-09.43	.1076	0.7088	08	145	000	9
0.869	10.34	-235.5	1.967	08.55	-05.90	.1283	0.9537				
1.469	09.27	-225.0	1.948	06.58	-06.58	.1311	0.9463				
2.069	09.01	-216.6	2.006	05.40	-07.25	.1249	0.9869				
0.269	05.47	-150.1	2.014	-02.73	-04.74	.1157	0.9251	12	145	000	9
0.869	22.47	-225.0	2.095	16.30	-16.30	.1029	0.9339				
1.469	15.56	-227.3	1.977	11.56	-10.69	.1237	0.9341				
2.069	14.37	-270.0	2.004	14.37	00.00	.1235	0.9727				
0.269	06.30	-121.8	2.151	-05.36	-03.33	.0949	0.9397	16	145	000	9
0.869	29.03	-228.0	1.958	22.41	-20.37	.0950	0.6965				
1.469	24.52	-225.7	2.116	18.07	-17.67	.0987	0.9256				
2.069	20.73	-225.0	2.061	14.98	-14.98	.1120	0.9640				
0.269	05.88	-135.0	2.139	-04.17	-04.17	.0859	0.8348	20	145	000	9
0.869	30.48	-218.1	2.115	19.96	-24.85	.0723	0.6773				
1.469	33.76	-223.7	2.185	24.78	-25.79	.0813	0.8485				
2.069	28.48	-229.4	2.000	22.38	-19.44	.1061	0.8302				
0.269	10.03	-153.3	2.311	-04.54	-08.97	.0664	0.8444	23	145	000	9
0.869	36.60	-221.8	1.892	26.33	-28.97	.0888	0.5876				
1.469	37.27	-222.7	2.401	27.29	-29.21	.0656	0.9609				
2.069	35.40	-226.2	2.213	27.15	-26.19	.0811	0.8854				
0.269	-00.54	-225.0	1.926	00.00	00.00	.1358	0.9472	00	150	000	9
0.869	-00.41	-059.9	1.942	00.00	00.00	.1322	0.9449				
1.469	-00.51	-315.0	1.938	00.00	00.00	.1337	0.9503				
2.069	-00.40	-210.6	1.942	00.00	00.00	.1346	0.9624				
0.269	05.02	-225.0	1.842	03.55	-03.55	.1257	0.7704	04	150	000	9
0.869	03.53	-270.0	1.974	03.53	00.00	.1284	0.9648				
1.469	04.15	-270.0	1.989	04.15	00.00	.1287	0.9901				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
2.069	04.33	-210.9	1.982	02.22	-03.71	.1290	0.9816				
0.269	07.37	-180.0	1.596	00.00	-07.37	.1052	0.4444	08	150	000	9
0.869	09.66	-236.5	1.972	08.07	-05.36	.1275	0.9553				
1.469	08.80	-225.0	1.972	06.25	-06.25	.1307	0.9790				
2.069	09.04	-212.2	1.988	04.84	-07.66	.1272	0.9770				
0.269	07.10	-180.0	2.061	00.00	-07.10	.1115	0.9587	12	150	000	9
0.869	23.08	-230.0	2.003	18.07	-15.31	.0970	0.7629				
1.469	14.84	-225.3	1.979	10.66	-10.55	.1255	0.9502				
2.069	13.71	-217.9	1.982	08.52	-10.89	.1259	0.9580				
0.269	06.96	-118.7	2.146	-06.11	-03.35	.0948	0.9318	16	150	000	9
0.869	24.66	-225.0	2.205	17.98	-17.98	.0756	0.8147				
1.469	23.98	-225.2	2.095	17.51	-17.40	.1012	0.9184				
2.069	19.87	-270.0	2.022	19.87	00.00	.1149	0.9310				
0.269	08.30	-121.1	2.133	-07.12	-04.30	.0855	0.8233	20	150	000	9
0.869	26.79	-212.3	2.130	15.09	-23.11	.0634	0.6080				
1.469	34.86	-222.3	2.207	25.11	-27.25	.0749	0.8093				
2.069	27.53	-225.0	2.012	20.23	-20.23	.1087	0.8666				
0.269	10.20	-143.7	2.233	-06.08	-08.25	.0606	0.6820	23	150	000	9
0.869	32.79	-224.0	1.909	24.10	-24.86	.0651	0.4422				
1.469	35.27	-218.6	1.987	23.80	-28.93	.0847	0.6493				
2.069	39.63	-270.0	2.338	39.63	00.00	.0652	0.8654				
0.269	-00.40	-239.9	1.926	00.00	00.00	.1358	0.9472	00	155	000	9
0.869	-00.40	-059.4	1.943	00.00	00.00	.1331	0.9532				
1.469	-00.40	-120.6	1.967	00.00	00.00	.1300	0.9666				
2.069	-00.10	-135.0	1.960	00.00	00.00	.1303	0.9585				
0.269	04.64	-283.1	1.753	04.52	01.05	.1282	0.6857	04	155	000	9
0.869	03.20	-217.9	1.979	01.96	-02.52	.1289	0.9759				
1.469	03.84	-214.8	1.979	02.19	-03.15	.1287	0.9748				
2.069	04.42	-210.9	1.940	02.27	-03.79	.1327	0.9464				
0.269	03.73	-135.0	1.701	-02.64	-02.64	.0996	0.4922	08	155	000	9
0.869	08.65	-231.6	1.989	06.79	-05.39	.1258	0.9676				
1.469	08.65	-224.6	1.971	06.09	-06.18	.1291	0.9656				
2.069	09.06	-210.9	1.958	04.68	-07.79	.1303	0.9556				
0.269	07.81	-121.4	2.049	-06.67	-04.08	.1098	0.9272	12	155	000	9
0.869	20.91	-236.7	2.085	17.71	-11.84	.0880	0.7863				
1.469	14.33	-225.0	1.936	10.23	-10.23	.1298	0.9194				
2.069	13.30	-214.2	1.971	07.56	-11.06	.1283	0.9597				
0.269	07.66	-106.1	2.137	-07.36	-02.13	.0948	0.9181	16	155	000	9
0.869	24.15	-220.1	2.195	16.10	-18.93	.0721	0.7646				
1.469	23.74	-225.0	2.014	17.27	-17.27	.1077	0.8605				
2.069	18.35	-223.8	2.026	12.92	-13.46	.1178	0.9602				
0.269	10.26	-118.3	2.058	-09.05	-04.90	.0868	0.7436	20	155	000	9
0.869	24.04	-212.2	2.148	13.37	-20.67	.0557	0.5491				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.469	36.78	-222.4	2.199	26.75	-28.90	.0705	0.7526				
2.069	26.04	-225.0	2.022	19.06	-19.06	.1129	0.9144				
0.269	09.98	-125.1	2.179	-08.19	-05.77	.0582	0.6025	23	155	000	9
0.869	24.16	-215.9	2.109	14.73	-19.96	.0539	0.5006				
1.469	40.40	-216.1	1.502	26.63	-34.51	.1416	0.5214				
2.069	34.05	-221.6	1.849	24.16	-26.80	.0964	0.5971				
0.269	-00.45	-225.0	1.927	00.00	00.00	.1352	0.9444	00	160	000	9
0.869	-00.60	-360.0	1.935	00.00	00.00	.1338	0.9461				
1.469	-00.60	-135.0	1.946	00.00	00.00	.1319	0.9487				
2.069	00.09	-149.8	1.983	-00.04	-00.07	.1275	0.9712				
0.269	03.70	-296.3	1.780	03.31	01.64	.1285	0.7161	04	160	000	9
0.869	03.21	-217.9	1.967	01.97	-02.53	.1301	0.9671				
1.469	03.95	-209.2	1.995	01.92	-03.44	.1263	0.9806				
2.069	04.59	-205.1	1.995	01.95	-04.15	.1270	0.9858				
0.269	04.87	-058.8	1.951	-04.16	02.52	.0972	0.7049	08	160	000	9
0.869	07.44	-227.2	1.990	05.47	-05.07	.1264	0.9735				
1.469	07.96	-211.3	1.996	04.15	-06.81	.1267	0.9853				
2.069	09.07	-210.4	1.954	04.61	-07.83	.1319	0.9613				
0.269	08.04	-106.1	2.037	-07.72	-02.24	.1085	0.8992	12	160	000	9
0.869	16.89	-262.6	2.184	16.75	-02.23	.0824	0.8596				
1.469	12.13	-270.0	1.981	12.13	00.00	.1261	0.9579				
2.069	12.71	-211.2	1.948	06.66	-10.91	.1324	0.9557				
0.269	06.96	-090.0	2.144	-06.96	00.00	.0943	0.9243	16	160	000	9
0.869	28.43	-216.1	1.545	17.69	-23.62	.0834	0.3269				
1.469	22.16	-227.2	1.984	16.63	-15.46	.1108	0.8451				
2.069	16.55	-219.6	2.023	10.72	-12.89	.1231	0.9990				
0.269	11.09	-099.9	2.087	-10.92	-01.93	.0845	0.7566	20	160	000	9
0.869	12.50	-210.1	2.040	06.34	-10.85	.0483	0.4019				
1.469	31.21	-215.9	1.986	19.55	-26.14	.0765	0.5856				
2.069	23.73	-223.7	2.067	16.89	-17.63	.1135	0.9855				
0.269	08.57	-098.4	2.371	-08.47	-01.26	.0526	0.7350	23	160	000	9
0.869	16.66	-215.2	1.983	09.78	-13.74	.0516	0.3932				
1.469	40.48	-211.7	1.302	24.15	-35.98	.1609	0.4470				
2.069	32.54	-214.2	1.744	19.73	-27.82	.1294	0.6825				
0.269	-00.40	-239.4	1.922	00.00	00.00	.1355	0.9395	00	165	000	9
0.869	-00.45	-360.0	1.940	00.00	00.00	.1335	0.9521				
1.469	-00.51	-270.0	1.940	00.00	00.00	.1331	0.9491				
2.069	00.13	-144.9	1.993	-00.07	-00.10	.1276	0.9876				
0.269	03.17	-299.6	1.864	02.75	01.56	.1278	0.8099	04	165	000	9
0.869	03.07	-212.1	1.961	01.63	-02.60	.1310	0.9646				
1.469	03.95	-207.4	1.999	01.82	-03.50	.1269	0.9914				
2.069	04.51	-203.3	2.009	01.78	-04.14	.1258	0.9978				
0.269	05.38	-045.0	2.340	-03.81	03.81	.0888	1.1815	08	165	000	9

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.869	06.80	-225.0	1.990	04.81	-04.81	.1274	0.9817				
1.469	07.76	-209.2	2.016	03.80	-06.78	.1249	1.0024				
2.069	08.69	-205.5	1.990	03.76	-07.85	.1277	0.9836				
0.269	06.82	-090.0	2.111	-06.82	00.00	.1050	0.9773	12	165	000	9
0.869	13.49	-281.6	2.251	13.22	02.76	.0860	0.9964				
1.469	10.85	-224.0	2.000	07.58	-07.85	.1263	0.9878				
2.069	12.48	-210.2	1.925	06.35	-10.82	.1353	0.9422				
0.269	07.35	-076.0	2.182	-07.13	01.78	.0934	0.9703	16	165	000	9
0.869	07.04	-270.0	2.599	07.04	00.00	.0486	0.9689				
1.469	17.88	-228.6	2.168	13.60	-12.04	.1013	1.0297				
2.069	15.86	-216.8	1.950	09.65	-12.81	.1316	0.9530				
0.269	09.53	-090.0	2.217	-09.53	00.00	.0802	0.8802	20	165	000	9
0.869	01.82	-201.7	2.586	00.67	-01.69	.0407	0.7946				
1.469	21.89	-219.2	2.328	14.24	-17.29	.0658	0.8599				
2.069	22.66	-224.1	2.031	16.20	-16.68	.1174	0.9640				
0.269	08.38	-081.5	2.566	-08.28	01.24	.0511	0.9666	23	165	000	9
0.869	05.29	-270.0	2.509	05.29	00.00	.0415	0.7186				
1.469	26.53	-210.7	2.231	14.29	-23.23	.0596	0.6686				
2.069	35.37	-214.1	1.708	21.70	-30.44	.1262	0.6305				
0.669	14.09	-008.0	2.556	-02.00	13.95	.0428	0.7970	23	170	000	9
1.269	06.88	-010.3	2.590	-01.23	06.77	.0502	0.9873				
1.869	04.39	-270.0	2.565	04.39	00.00	.0625	1.1812				
0.669	-00.40	-210.6	1.939	00.00	00.00	.1337	0.9516	00	175	000	9
1.269	-00.45	-225.0	1.952	00.00	00.00	.1324	0.9611				
1.869	-00.32	-270.0	1.956	00.00	00.00	.1326	0.9686				
0.669	02.43	-190.3	1.969	00.43	-02.39	.1304	0.9721	04	175	000	9
1.269	03.64	-188.6	1.972	00.54	-03.59	.1306	0.9781				
1.869	04.31	-184.3	1.970	00.32	-04.29	.1308	0.9767				
0.669	01.95	-225.0	1.973	01.37	-01.37	.1301	0.9761	08	175	000	9
1.269	06.50	-194.4	1.962	01.62	-06.29	.1321	0.9743				
1.869	08.31	-188.0	1.957	01.16	-08.23	.1323	0.9684				
0.669	09.78	000.0	2.191	00.00	09.78	.1001	1.0555	12	175	000	9
1.269	04.97	-210.6	1.965	02.53	-04.28	.1319	0.9773				
1.869	10.18	-190.6	1.945	01.89	-10.00	.1344	0.9650				
0.669	15.73	-006.0	2.353	-01.68	15.64	.0694	0.9431	16	175	000	9
1.269	08.71	-336.4	2.147	03.51	07.99	.1047	1.0307				
1.869	08.42	-208.8	1.906	04.07	-07.39	.1393	0.9422				
0.669	23.03	-009.7	2.355	-04.09	22.73	.0518	0.7050	20	175	000	9
1.269	17.51	-002.7	2.508	-00.85	17.49	.0590	1.0206				
1.869	05.03	-289.8	1.991	04.73	01.70	.1202	0.9273				
0.669	19.82	000.0	2.455	00.00	19.82	.0453	0.7220	23	175	000	9
1.269	17.17	-003.7	2.590	-01.14	17.13	.0486	0.9534				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
1.869	08.22	000.0	2.287	00.00	08.22	.0718	0.8796				
0.269	-00.20	-225.0	1.926	00.00	00.00	.1352	0.9433	00	180	000	9
0.669	-00.45	-135.0	1.941	00.00	00.00	.1335	0.9531				
0.869	-00.60	-360.0	1.933	00.00	00.00	.1344	0.9473				
1.269	-00.60	-225.0	1.941	00.00	00.00	.1334	0.9520				
1.469	-00.45	-135.0	1.938	00.00	00.00	.1337	0.9503				
1.869	-00.51	-270.0	1.945	00.00	00.00	.1339	0.9614				
2.069	00.27	-149.8	1.971	-00.13	-00.23	.1307	0.9782				
0.269	-00.39	-300.1	1.899	00.00	00.00	.1358	0.9082	04	180	000	9
0.669	02.29	-180.0	1.973	00.00	-02.29	.1300	0.9753				
0.869	02.71	-135.0	1.962	-01.91	-01.91	.1313	0.9686				
1.269	03.45	-135.0	1.973	-02.44	-02.44	.1303	0.9774				
1.469	03.82	-135.0	1.980	-02.70	-02.70	.1297	0.9838				
1.869	04.29	-135.0	1.968	-03.03	-03.03	.1311	0.9764				
2.069	04.70	-180.0	1.984	00.00	-04.70	.1292	0.9864				
0.269	04.81	-360.0	2.016	00.00	04.81	.1219	0.9784	08	180	000	9
0.669	01.10	-180.0	1.957	00.00	-01.10	.1315	0.9627				
0.869	03.16	-180.0	1.957	00.00	-03.16	.1321	0.9667				
1.269	06.11	-180.0	1.968	00.00	-06.11	.1311	0.9764				
1.469	07.19	-180.0	1.976	00.00	-07.19	.1302	0.9813				
1.869	08.17	-180.0	1.955	00.00	-08.17	.1327	0.9683				
2.069	08.55	-180.0	1.974	00.00	-08.55	.1304	0.9801				
0.269	06.16	-360.0	2.094	00.00	06.16	.1082	0.9804	12	180	000	9
0.669	10.14	-360.0	1.992	00.00	10.14	.1126	0.8699				
0.869	04.57	-360.0	1.918	00.00	04.57	.1269	0.8744				
1.269	04.50	-180.0	1.935	00.00	-04.50	.1342	0.9493				
1.469	07.26	-135.0	1.949	-05.14	-05.14	.1329	0.9605				
1.869	10.06	-180.0	1.926	00.00	-10.06	.1359	0.9480				
2.069	11.08	-180.0	1.938	00.00	-11.08	.1344	0.9549				
0.269	07.47	-360.0	2.123	00.00	07.47	.0988	0.9367	16	180	000	9
0.669	17.62	-360.0	2.232	00.00	17.62	.0711	0.7987				
0.869	24.78	000.0	2.172	00.00	24.78	.0718	0.7354				
1.269	09.94	-001.6	1.892	-00.28	09.93	.1210	0.8005				
1.469	00.99	-328.4	1.815	00.51	00.84	.1400	0.8234				
1.869	08.36	-180.0	1.838	00.00	-08.36	.1457	0.8870				
2.069	10.89	-135.0	1.888	-07.74	-07.74	.1403	0.9226				
0.269	10.42	000.0	2.111	00.00	10.42	.0879	0.8177	20	180	000	9
0.669	28.55	-360.0	2.155	00.00	28.55	.0577	0.5743				
0.869	25.94	000.0	1.943	00.00	25.94	.0693	0.4966				
1.269	23.94	-360.0	2.038	00.00	23.94	.0737	0.6119				
1.469	19.43	000.0	1.875	00.00	19.43	.0962	0.6195				
1.869	04.39	-028.4	1.846	-02.09	03.86	.1337	0.8240				
2.069	04.37	-209.8	1.818	02.17	-03.79	.1434	0.8470				
0.269	15.16	-002.3	2.248	-00.62	15.14	.0657	0.7573	23	180	000	9
0.669	26.38	-360.0	2.163	00.00	26.38	.0534	0.5385				
0.869	25.76	000.0	2.142	00.00	25.76	.0538	0.5252				
1.269	26.69	-360.0	2.013	00.00	26.69	.0635	0.5071				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.469	24.92	000.0	1.780	00.00	24.92	.0803	0.4476				
1.869	22.51	-360.0	1.720	00.00	22.51	.0915	0.4654				
2.069	14.13	000.0	1.728	00.00	14.13	.1088	0.5604				
0.669	-00.40	-210.3	1.934	00.00	00.00	.1345	0.9501	00	185	000	9
1.269	-00.43	-225.0	1.947	00.00	00.00	.1332	0.9598				
1.869	-00.40	-239.7	1.942	00.00	00.00	.1341	0.9587				
0.669	02.44	-161.1	1.971	-00.79	-02.30	.1301	0.9736	04	185	000	9
1.269	03.45	-180.0	1.975	00.00	-03.45	.1302	0.9802				
1.869	04.32	-180.0	1.963	00.00	-04.32	.1315	0.9717				
0.669	01.95	-180.0	1.963	00.00	-01.95	.1303	0.9622	08	185	000	9
1.269	06.45	-165.5	1.962	-01.62	-06.24	.1317	0.9714				
1.869	08.21	-180.0	1.955	00.00	-08.21	.1327	0.9681				
0.669	12.32	-360.0	1.820	00.00	12.32	.1141	0.6757	12	185	000	9
1.269	05.71	-149.5	1.867	-02.90	-04.92	.1363	0.8675				
1.869	10.68	-170.6	1.915	-01.76	-10.54	.1373	0.9416				
0.669	21.11	-352.7	1.951	02.80	20.95	.0777	0.5636	16	185	000	9
1.269	11.83	-028.5	1.717	-05.70	10.43	.1210	0.6125				
1.869	09.95	-152.4	1.820	-04.64	-08.83	.1461	0.8653				
0.669	31.58	-352.7	2.159	04.46	31.37	.0519	0.5205	20	185	000	9
1.269	24.15	-358.4	1.847	00.71	24.14	.0731	0.4514				
1.869	08.18	-097.8	1.831	-08.10	-01.11	.1317	0.7936				
0.669	28.22	-359.9	1.955	00.05	28.21	.0574	0.4191	23	185	000	9
1.269	23.61	-350.4	1.860	04.16	23.31	.0641	0.4033				
1.869	08.97	-360.0	1.866	00.00	08.97	.0813	0.5170				
0.669	-00.25	-210.2	1.941	00.00	00.00	.1338	0.9550	00	190	000	9
1.269	-00.54	-270.0	1.946	00.00	00.00	.1334	0.9599				
1.869	-00.40	-239.4	1.942	00.00	00.00	.1342	0.9595				
0.669	02.51	-150.4	1.971	-01.24	-02.18	.1303	0.9747	04	190	000	9
1.269	03.64	-160.7	1.964	-01.20	-03.43	.1318	0.9752				
1.869	04.53	-170.9	1.967	-00.71	-04.47	.1313	0.9760				
0.669	03.94	-119.7	1.958	-03.42	-01.95	.1298	0.9519	08	190	000	9
1.269	06.73	-152.8	1.964	-03.08	-05.99	.1316	0.9741				
1.869	08.76	-162.1	1.956	-02.71	-08.34	.1324	0.9674				
0.669	16.59	-358.2	1.723	00.53	16.58	.1013	0.5177	12	190	000	9
1.269	07.88	-180.0	1.825	00.00	-07.88	.1348	0.8046				
1.869	11.50	-156.5	1.911	-04.63	-10.56	.1372	0.9352				
0.669	21.61	-332.4	1.814	10.39	19.34	.0742	0.4357	16	190	000	9
1.269	12.38	-065.3	1.806	-11.27	05.24	.1078	0.6252				
1.869	13.94	-146.8	1.830	-07.74	-11.73	.1437	0.8641				
0.669	25.22	-338.6	1.907	09.75	23.67	.0546	0.3700	20	190	000	9
1.269	08.62	000.0	1.995	00.00	08.62	.0620	0.4811				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	β	RUN
1.869	20.96	-131.1	1.845	-16.10	-14.13	.1276	0.7851				
0.669	21.89	-346.8	1.863	05.24	21.36	.0535	0.3382	23	190	000	9
1.269	07.51	-340.2	2.017	02.55	07.07	.0552	0.4434				
1.869	12.43	-146.6	2.793	-06.91	-10.42	.0685	0.8469				
0.669	-00.28	-135.0	1.933	00.00	00.00	.1349	0.9509	00	195	000	9
1.269	-00.60	-225.0	1.940	00.00	00.00	.1340	0.9551				
1.869	-00.32	-270.0	1.948	00.00	00.00	.1335	0.9638				
0.669	02.99	-149.3	1.969	-01.52	-02.57	.1305	0.9727	04	195	000	9
1.269	03.70	-153.0	1.944	-01.68	-03.29	.1325	0.9507				
1.869	04.51	-162.5	1.965	-01.35	-02.95	.1315	0.9741				
0.669	05.76	-114.5	1.920	-05.24	-02.39	.1303	0.9007	08	195	000	9
1.269	07.01	-150.4	1.952	-03.47	-06.10	.1325	0.9622				
1.869	08.89	-157.7	1.942	-03.39	-08.23	.1339	0.9573				
0.669	19.20	-354.4	1.493	01.94	19.11	.0989	0.3595	12	195	000	9
1.269	08.67	-126.6	1.925	-06.97	-05.19	.1282	0.8928				
1.869	12.27	-152.6	1.897	-05.71	-10.92	.1379	0.9201				
0.669	16.52	-322.8	2.056	10.16	13.29	.0605	0.5169	16	195	000	9
1.269	15.00	-103.7	2.004	-14.59	-03.63	.0975	0.7676				
1.869	16.21	-145.1	1.844	-09.44	-13.41	.1397	0.8584				
0.669	19.75	-332.7	1.830	09.35	17.69	.0529	0.3187	20	195	000	9
1.269	04.59	-115.2	2.059	-04.15	-01.95	.0590	0.5056				
1.869	25.90	-180.2	1.866	00.09	-25.90	.1255	0.7976				
0.669	16.38	-341.2	1.869	05.41	15.54	.0511	0.3265	23	195	000	9
1.269	01.70	-180.0	2.126	00.00	-01.70	.0525	0.4999				
1.869	25.07	-143.6	2.124	-15.51	-20.63	.0841	0.7986				
0.469	04.18	-270.0	1.903	04.18	00.00	.0533	0.3587	23	200	000	9
1.069	25.66	-142.1	2.016	-16.44	-20.76	.0581	0.4662				
0.469	-00.10	-243.3	1.926	00.00	00.00	.1359	0.9481	00	205	000	9
1.069	00.12	-270.0	1.940	00.12	00.00	.1333	0.9505				
1.669	-00.10	-205.7	1.938	00.00	00.00	.1335	0.9483				
0.469	03.70	-180.0	1.966	00.00	-03.70	.1304	0.9680	04	205	000	9
1.069	03.94	-148.3	1.969	-02.07	-03.35	.1299	0.9687				
1.669	04.08	-148.9	1.964	-02.11	-03.49	.1304	0.9646				
0.469	12.14	-109.5	1.793	-11.46	-04.10	.1111	0.6319	08	205	000	9
1.069	08.37	-135.0	1.975	-05.94	-05.94	.1281	0.9640				
1.669	08.67	-144.7	1.958	-05.03	-07.09	.1306	0.9576				
0.469	13.44	-211.2	2.038	07.05	-11.55	.0915	0.7598	12	205	000	9
1.069	17.02	-122.6	2.060	-14.46	-09.36	.1087	0.9341				
1.669	13.97	-135.0	1.955	-09.97	-09.97	.1286	0.9381				
0.469	09.87	-270.0	2.208	09.87	00.00	.0819	0.8868	16	205	000	9

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.069	26.57	-130.5	2.228	-20.82	-17.99	.0750	0.8386				
1.669	21.95	-134.2	2.030	-16.11	-15.69	.1117	0.9150				
0.469	11.62	-208.9	2.152	05.67	-10.20	.0641	0.6354	20	205	000	9
1.069	30.44	-138.5	2.158	-21.27	-23.75	.0573	0.5738				
1.669	28.80	-180.0	1.963	00.00	-28.80	.0986	0.7282				
0.469	08.41	-180.0	2.035	00.00	-08.41	.0535	0.4419	23	205	000	9
1.069	35.20	-133.8	2.098	-26.98	-26.02	.0624	0.5688				
1.669	38.58	-138.7	1.925	-27.76	-30.93	.0892	0.6213				
0.469	-00.05	-239.8	1.931	00.00	00.00	.1354	0.9521	00	210	000	9
0.669	-00.13	-135.0	1.938	00.00	00.00	.1344	0.9552				
1.069	00.30	-210.3	1.945	00.15	-00.25	.1329	0.9545				
1.269	-00.60	-135.0	1.933	00.00	00.00	.1344	0.9473				
1.669	-00.10	-205.7	1.944	00.00	00.00	.1327	0.9519				
1.869	-00.39	-210.6	1.938	00.00	00.00	.1329	0.9445				
0.469	04.20	-132.2	1.969	-03.11	-02.82	.1301	0.9698	04	210	000	9
0.669	04.15	-180.0	1.974	00.00	-04.15	.1294	0.9729				
1.069	03.97	-138.4	1.971	-02.63	-02.97	.1300	0.9729				
1.269	04.07	-135.0	1.954	-02.88	-02.88	.1320	0.9616				
1.669	04.25	-144.1	1.969	-02.49	-03.44	.1297	0.9668				
1.869	04.57	-148.8	1.951	-02.37	-03.91	.1314	0.9529				
0.469	14.09	-122.1	1.861	-12.00	-07.59	.1121	0.7077	08	210	000	9
0.669	11.69	-120.5	1.976	-10.10	-05.99	.1236	0.9314				
1.069	09.04	-180.0	1.995	00.00	-09.04	.1256	0.9752				
1.269	09.34	-135.0	1.938	-06.63	-06.63	.1326	0.9425				
1.669	09.07	-135.6	1.966	-06.37	-06.50	.1289	0.9563				
1.869	09.92	-147.7	1.932	-05.28	-08.32	.1332	0.9381				
0.469	12.13	-182.9	2.014	00.62	-12.11	.1038	0.8300	12	210	000	9
0.669	18.76	-144.4	2.236	-11.18	-15.43	.0761	0.8606				
1.069	17.83	-127.1	2.080	-14.38	-10.98	.1080	0.9571				
1.269	17.14	-128.6	1.983	-13.55	-10.89	.1216	0.9266				
1.669	14.98	-180.0	1.978	00.00	-14.98	.1252	0.9467				
1.869	15.46	-142.2	1.917	-09.62	-12.32	.1334	0.9180				
0.469	08.68	-212.6	2.138	04.70	-07.32	.0871	0.8456	16	210	000	9
0.669	14.52	-158.8	2.059	-05.35	-13.57	.0772	0.6622				
1.069	27.53	-130.8	2.216	-21.53	-18.80	.0818	0.8964				
1.269	27.93	-131.9	2.089	-21.53	-19.49	.0958	0.8613				
1.669	23.22	-130.8	2.031	-17.99	-15.65	.1101	0.9037				
1.869	23.14	-136.1	1.923	-16.50	-17.11	.1255	0.8711				
0.469	12.00	-180.9	2.234	00.19	-11.99	.0722	0.8141	20	210	000	9
0.669	14.82	-150.9	2.435	-07.33	-13.01	.0545	0.8413				
1.069	34.97	-133.0	2.080	-27.09	-25.50	.0736	0.6526				
1.269	37.67	-135.0	2.209	-28.63	-28.63	.0738	0.8000				
1.669	35.01	-132.3	2.143	-27.38	-25.24	.0827	0.8081				
1.869	32.76	-139.0	1.775	-22.88	-25.90	.1283	0.7093				
0.469	13.90	-156.1	2.230	-05.72	-12.74	.0565	0.6337	23	210	000	9

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
0.669	17.66	-143.5	2.310	-10.72	-14.35	.0498	0.6326				
1.069	38.58	-135.0	1.980	-29.42	-29.42	.0825	0.6255				
1.269	40.99	-139.6	1.370	-29.38	-33.49	.1771	0.5405				
1.669	39.75	-135.0	2.467	-30.45	-30.45	.0608	0.9863				
1.869	42.77	-142.2	2.871	-29.55	-36.16	.0479	1.4461				
0.469	-00.05	-239.8	1.934	00.00	00.00	.1353	0.9558	00	215	000	9
1.069	00.15	-215.1	1.946	00.08	-00.12	.1331	0.9579				
1.669	-00.04	-210.2	1.949	00.00	00.00	.1317	0.9521				
0.469	04.50	-129.7	1.973	-03.46	-02.87	.1297	0.9729	04	215	000	9
1.069	04.18	-135.0	1.973	-02.95	-02.95	.1299	0.9749				
1.669	04.02	-138.6	1.970	-02.66	-03.01	.1291	0.9641				
0.469	14.35	-124.8	1.914	-11.86	-08.30	.1155	0.7912	08	215	000	9
1.069	09.27	-132.8	1.990	-06.82	-06.32	.1261	0.9719				
1.669	09.13	-135.0	1.981	-06.48	-06.48	.1275	0.9683				
0.469	12.01	-165.9	1.991	-02.96	-11.65	.1092	0.8428	12	215	000	9
1.069	17.92	-130.0	2.092	-13.91	-11.74	.1080	0.9758				
1.669	15.46	-130.8	1.984	-11.82	-10.24	.1244	0.9493				
0.469	09.74	-208.3	1.953	04.65	-08.59	.0944	0.6867	16	215	000	9
1.069	26.91	-131.5	2.166	-20.81	-18.58	.0892	0.9046				
1.669	23.67	-130.3	2.046	-18.48	-15.82	.1087	0.9141				
0.469	10.60	-180.0	2.175	00.00	-10.60	.0796	0.8186	20	215	000	9
1.069	34.08	-135.0	2.112	-25.56	-25.56	.0823	0.7674				
1.669	34.03	-130.6	2.176	-27.14	-23.72	.0852	0.8773				
0.469	15.37	-153.5	2.221	-06.99	-13.82	.0638	0.7045	23	215	000	9
1.069	35.87	-135.0	2.038	-27.08	-27.08	.0841	0.6984				
1.669	38.41	-180.0	2.290	00.00	-38.41	.0749	0.9217				
0.469	00.01	-225.0	1.940	00.00	00.00	.1348	0.9614	00	220	000	9
1.069	00.27	-210.3	1.955	00.13	-00.23	.1324	0.9664				
1.669	00.15	-215.1	1.970	00.08	-00.12	.1292	0.9648				
0.469	04.84	-124.0	1.979	-04.01	-02.71	.1293	0.9795	04	220	000	9
1.069	04.35	-135.0	1.986	-03.07	-03.07	.1285	0.9839				
1.669	04.19	-135.0	1.983	-02.96	-02.96	.1279	0.9741				
0.469	15.23	-130.2	1.862	-11.74	-09.96	.1227	0.7755	08	220	000	9
1.069	09.62	-126.2	2.007	-07.78	-05.71	.1245	0.9849				
1.669	09.34	-131.4	1.982	-07.03	-06.20	.1276	0.9712				
0.469	13.95	-146.2	1.942	-07.86	-11.66	.1129	0.8076	12	220	000	9
1.069	17.71	-130.3	2.089	-13.68	-11.67	.1093	0.9823				
1.669	15.59	-127.6	1.988	-12.46	-09.66	.1239	0.9514				
0.469	10.96	-180.0	1.937	00.00	-10.96	.0955	0.6774	16	220	000	9
1.069	26.37	-131.3	2.111	-20.42	-18.11	.0962	0.8958				
1.669	23.69	-129.0	2.050	-18.82	-15.43	.1095	0.9265				
0.469	10.77	-159.3	1.984	-03.84	-10.08	.0861	0.6573	20	220	000	9

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.069	34.33	-180.0	2.180	00.00	-34.33	.0842	0.8725				
1.669	32.60	-129.2	2.107	-26.36	-22.00	.0939	0.8673				
0.469	16.57	-147.3	2.080	-09.13	-14.05	.0700	0.6206	23	220	000	9
1.069	33.15	-180.0	2.208	00.00	-38.15	.0793	0.8586				
1.669	37.40	-132.2	2.219	-29.52	-27.18	.0833	0.9178				
0.469	-00.20	-226.9	1.929	00.00	00.00	.1365	0.9565	00	225	000	9
1.069	00.27	-210.3	1.949	00.13	-00.23	.1332	0.9624				
1.669	-00.27	-210.0	1.954	00.00	00.00	.1317	0.9596				
0.469	05.10	-123.3	1.984	-04.26	-02.80	.1289	0.9839	04	225	000	9
1.069	04.42	-180.0	1.988	00.00	-04.42	.1283	0.9854				
1.669	04.24	-180.0	1.981	00.00	-04.24	.1286	0.9771				
0.469	13.79	-180.0	1.988	00.00	-13.79	.1222	0.9386	08	225	000	9
1.069	09.80	-124.9	2.007	-08.06	-05.64	.1243	0.9827				
1.669	09.39	-127.9	1.979	-07.43	-05.80	.1282	0.9711				
0.469	15.88	-135.5	1.932	-11.27	-11.47	.1153	0.8120	12	225	000	9
1.069	17.31	-129.6	2.088	-13.50	-11.23	.1099	0.9866				
1.669	15.74	-126.2	1.990	-12.81	-09.45	.1236	0.9524				
0.469	13.23	-154.7	1.958	-05.73	-12.00	.0945	0.6930	16	225	000	9
1.069	25.75	-130.5	2.115	-20.14	-17.39	.0986	0.9233				
1.669	23.71	-127.8	2.058	-19.13	-15.06	.1100	0.9419				
0.469	13.06	-147.1	1.918	-07.18	-11.02	.0890	0.6130	20	225	000	9
1.069	32.52	-133.7	2.214	-24.74	-23.77	.0856	0.9354				
1.669	31.46	-128.2	2.188	-25.67	-20.72	.0908	0.9525				
0.469	19.81	-180.0	2.095	00.00	-19.81	.0722	0.6550	23	225	000	9
1.069	35.91	-132.7	2.259	-28.02	-26.15	.0797	0.9344				
1.669	35.17	-129.9	2.161	-28.39	-24.32	.0916	0.9213				
0.469	-00.10	-225.0	1.936	00.00	00.00	.1358	0.9622	00	240	000	9
1.069	00.62	-210.2	1.966	00.31	-00.53	.1305	0.9686				
1.669	-00.20	-270.0	1.946	00.00	00.00	.1333	0.9593				
0.469	05.39	-119.5	1.979	-04.69	-02.66	.1294	0.9803	04	240	000	9
1.069	04.43	-123.1	1.994	-03.71	-02.42	.1272	0.9858				
1.669	04.38	-120.1	1.977	-03.79	-02.20	.1298	0.9800				
0.469	11.83	-121.2	1.983	-10.15	-06.19	.1261	0.9608	08	240	000	9
1.069	10.18	-119.3	2.008	-08.90	-05.02	.1240	0.9824				
1.669	09.70	-117.1	1.963	-08.65	-04.45	.1307	0.9653				
0.469	17.58	-127.0	2.040	-14.20	-10.79	.1144	0.9529	12	240	000	9
1.069	16.14	-120.8	2.082	-13.95	-08.42	.1123	0.9978				
1.669	16.28	-117.4	2.004	-14.53	-07.65	.1230	0.9693				
0.469	25.76	-180.0	1.954	00.00	-25.76	.1136	0.8278	16	240	000	9
1.069	23.40	-123.1	2.104	-19.92	-13.29	.1033	0.9509				
1.669	23.34	-119.5	2.018	-20.58	-11.99	.1165	0.9376				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ε	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	β	RUN
0.469	30.63	-130.8	2.077	-24.14	-21.15	.0985	0.8696	20	240	000	9
1.069	28.61	-123.5	2.062	-24.45	-16.75	.1048	0.9029				
1.669	29.47	-120.9	2.036	-25.86	-16.18	.1119	0.9261				
0.469	35.17	-130.1	2.026	-28.32	-24.41	.0987	0.8043	23	240	000	9
1.069	33.12	-122.7	2.060	-28.76	-19.41	.1007	0.8658				
1.669	33.41	-121.4	2.044	-29.38	-18.96	.1085	0.9096				

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APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
0.269	00.19	-194.1	1.903	00.04	-00.18	.1423	0.9581	00	000	045	12
0.869	-00.23	-059.9	1.916	00.00	00.00	.1355	0.9308				
1.469	00.59	-149.9	1.887	-00.29	-00.51	.1416	0.9300				
2.069	05.85	-060.4	1.896	-05.09	02.89	.1090	0.7261				
0.269	05.64	-334.5	1.880	02.43	05.09	.1232	0.8003	16	000	045	12
0.869	14.72	-360.0	2.097	00.00	14.72	.0939	0.8544				
1.469	07.55	-360.0	1.702	00.00	07.55	.1479	0.7320				
2.069	12.34	-355.2	1.920	01.04	12.29	.1361	0.9401				
0.269	07.74	-335.7	1.855	03.20	07.06	.1327	0.8297	20	000	045	12
0.869	16.27	-353.3	2.021	01.95	16.16	.1063	0.8597				
1.469	10.37	-360.0	1.685	00.00	10.37	.1582	0.7637				
2.069	14.28	-354.3	1.857	01.44	14.21	.1507	0.9449				
0.269	08.69	-337.0	1.807	03.41	08.00	.1448	0.8409	23	000	045	12
0.869	16.96	-359.7	1.973	00.09	16.95	.1167	0.8759				
1.469	10.63	-360.0	1.595	00.00	10.63	.1807	0.7622				
2.069	15.53	-353.7	1.821	01.74	15.44	.1608	0.9539				
0.269	-00.13	-135.0	1.883	00.00	00.00	.1433	0.9352	00	015	045	12
0.869	00.55	-007.0	1.929	-00.06	00.54	.1345	0.9422				
1.469	-00.16	-137.1	1.964	00.00	00.00	.1223	0.9050				
2.069	03.30	-090.0	2.108	-03.30	00.00	.1059	0.9802				
0.269	08.40	-306.2	1.889	06.79	04.98	.1224	0.8063	16	015	045	12
0.869	13.40	-331.8	2.015	06.42	11.85	.1058	0.8475				
1.469	13.64	-327.7	1.886	07.38	11.59	.1262	0.8277				
2.069	13.33	-327.7	1.959	07.21	11.32	.1288	0.9453				
0.269	10.82	-306.5	1.857	08.73	06.48	.1303	0.8169	20	015	045	12
0.869	17.63	-330.3	2.040	08.94	15.43	.1041	0.8673				
1.469	15.19	-327.6	1.823	08.27	12.91	.1402	0.8344				
2.069	16.56	-326.3	1.940	09.36	13.89	.1340	0.9554				
0.269	12.30	-307.9	1.814	09.76	07.62	.1413	0.8296	23	015	045	12
0.869	19.11	-329.6	1.980	09.94	16.63	.1159	0.8783				
1.469	17.07	-327.3	1.783	09.41	14.48	.1502	0.8409				
2.069	18.31	-325.8	1.871	10.53	15.30	.1470	0.9423				
0.269	01.71	-212.0	1.880	00.90	-01.45	.1454	0.9446	00	030	045	12
0.669	00.84	-120.0	1.989	-00.72	-00.42	.1224	0.9412				
0.869	01.77	-090.0	2.011	-01.77	00.00	.1171	0.9321				
1.269	02.27	-045.0	2.022	-01.60	01.60	.1144	0.9263				
1.469	03.33	-036.4	2.066	-01.97	02.68	.1075	0.9325				
1.869	02.24	-090.0	2.003	-02.24	00.00	.1185	0.9312				
2.069	02.70	-090.0	1.999	-02.70	00.00	.1213	0.9473				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.269	12.02	-294.0	1.910	11.00	04.95	.1183	0.8049	16	030	045	12
0.669	12.47	-315.0	1.959	08.88	08.88	.1163	0.8535				
0.869	13.82	-360.0	1.946	00.00	13.82	.1210	0.8703				
1.269	15.41	-360.0	2.050	00.00	15.41	.1106	0.9352				
1.469	16.93	-308.7	2.011	13.36	10.77	.1178	0.9383				
1.869	15.98	-313.7	2.003	11.69	11.19	.1237	0.9722				
2.069	15.12	-309.8	1.973	11.72	09.81	.1317	0.9879				
0.269	15.41	-294.1	1.891	14.12	06.42	.1214	0.8022	20	030	045	12
0.669	15.54	-308.4	1.901	12.29	09.79	.1228	0.8244				
0.869	15.93	-311.9	1.920	11.99	10.79	.1249	0.8631				
1.269	17.17	-314.1	2.052	12.51	12.13	.1117	0.9477				
1.469	18.88	-307.3	1.918	15.21	11.70	.1314	0.9052				
1.869	18.37	-312.0	1.993	13.86	12.52	.1280	0.9913				
2.069	17.91	-307.9	1.973	14.30	11.22	.1331	0.9985				
0.269	16.98	-293.8	1.896	15.60	07.02	.1254	0.8353	23	030	045	12
0.669	17.68	-308.9	1.876	13.93	11.31	.1293	0.8349				
0.869	18.47	-309.2	1.873	14.51	11.92	.1321	0.8490				
1.269	19.24	-312.5	1.986	14.43	13.26	.1208	0.9245				
1.469	20.90	-306.1	1.892	17.14	12.68	.1367	0.9048				
1.869	20.60	-311.9	1.902	15.63	14.09	.1405	0.9444				
2.069	20.23	-310.3	1.863	15.69	13.40	.1479	0.9356				
0.269	01.65	-077.5	1.792	-01.61	00.35	.1294	0.7347	00	045	045	12
0.669	00.24	-068.6	1.802	-00.22	00.08	.1244	0.7172				
0.869	01.72	-036.0	1.846	-01.01	01.39	.1213	0.7480				
1.269	03.33	-008.9	1.825	-00.51	03.29	.1180	0.7047				
1.469	04.18	-016.2	1.857	-01.16	04.01	.1194	0.7490				
1.869	02.26	-022.3	1.938	-00.85	02.09	.1224	0.8696				
2.069	00.81	-360.0	2.025	00.00	00.81	.1216	0.9890				
0.269	14.45	-277.5	1.983	14.33	01.92	.1075	0.8189	16	045	045	12
0.669	13.37	-294.4	1.943	12.21	05.60	.1153	0.8256				
0.869	14.69	-290.2	1.954	13.82	05.17	.1173	0.8549				
1.269	16.27	-291.3	2.085	15.21	06.05	.1059	0.9468				
1.469	18.44	-294.0	2.019	16.94	07.72	.1164	0.9383				
1.869	18.62	-298.9	2.027	16.43	09.24	.1206	0.9843				
2.069	18.10	-295.3	2.030	16.46	07.95	.1211	0.9922				
0.269	19.46	-278.1	2.050	19.28	02.85	.1008	0.8522	20	045	045	12
0.669	17.19	-294.7	1.944	15.69	07.36	.1157	0.8300				
0.869	18.25	-292.4	1.960	16.95	07.16	.1186	0.8719				
1.269	19.40	-295.0	2.045	17.70	08.46	.1109	0.9303				
1.469	21.95	-297.0	1.985	19.75	10.36	.1224	0.9356				
1.869	21.00	-298.0	1.941	18.72	10.21	.1333	0.9515				
2.069	20.44	-294.3	1.958	18.76	08.72	.1327	0.9726				
0.269	21.75	-277.4	2.018	21.58	02.94	.1068	0.8588	23	045	045	12
0.669	19.88	-295.1	1.915	18.13	08.72	.1221	0.8370				
0.869	20.25	-292.4	1.909	18.83	08.00	.1270	0.8629				
1.269	21.35	-296.8	1.988	19.23	09.99	.1200	0.9218				
1.469	23.45	-296.1	1.928	21.28	10.80	.1336	0.9346				
1.869	22.59	-297.4	1.874	20.27	10.83	.1450	0.9331				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

r	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
2.069	22.13	-293.9	1.900	20.39	09.35	.1424	0.9540				
0.269	01.11	-060.2	1.976	-00.96	00.55	.1255	0.9462	00	060	045	12
0.469	00.72	-086.4	1.919	-00.71	00.04	.1320	0.9113				
0.669	00.41	-048.1	1.927	-00.30	00.27	.1316	0.9196				
0.869	01.53	-030.0	1.949	-00.76	01.32	.1290	0.9322				
1.069	00.23	-016.2	2.057	-00.06	00.22	.1192	1.0190				
1.269	01.61	-350.6	2.013	00.26	01.58	.1203	0.9610				
1.469	01.26	-344.9	1.987	00.32	01.21	.1243	0.9530				
1.669	-00.31	-315.0	1.958	00.00	00.00	.1292	0.9473				
1.869	00.90	-360.0	1.957	00.00	00.90	.1312	0.9606				
2.069	-00.43	-225.0	1.939	00.00	00.00	.1345	0.9576				
0.269	14.64	-225.0	2.033	10.46	-10.46	.0968	0.7976	16	060	045	12
0.469	13.26	-225.0	1.991	09.46	-09.46	.1032	0.7962				
0.669	13.73	-270.0	1.975	13.73	00.00	.1060	0.7980				
0.869	14.67	-255.9	1.974	14.24	-03.64	.1077	0.8094				
1.069	17.82	-246.8	1.946	16.46	-07.21	.1106	0.7953				
1.269	19.83	-260.1	1.972	19.55	-03.54	.1128	0.8452				
1.469	22.39	-262.7	2.003	22.22	-02.99	.1140	0.8962				
1.669	21.67	-270.0	2.011	21.67	00.00	.1155	0.9198				
1.869	23.54	-282.8	2.047	23.01	05.51	.1144	0.9624				
2.069	23.06	-275.1	2.040	22.97	02.16	.1171	0.9753				
0.269	20.90	-225.0	2.143	15.11	-15.11	.0849	0.8299	20	060	045	12
0.469	18.64	-225.0	2.039	13.41	-13.41	.0970	0.8066				
0.669	18.68	-270.0	2.021	18.68	00.00	.1016	0.8214				
0.869	19.99	-264.1	2.020	19.89	-02.14	.1026	0.8281				
1.069	21.31	-256.3	1.987	20.75	-05.27	.1129	0.8660				
1.269	22.54	-270.0	1.975	22.54	00.00	.1156	0.8700				
1.469	23.75	-270.0	1.972	23.75	00.00	.1187	0.8890				
1.669	24.10	-225.0	2.002	17.55	-17.55	.1184	0.9293				
1.869	26.04	-283.3	2.021	25.43	06.41	.1191	0.9631				
2.069	24.94	-270.8	1.988	24.93	00.37	.1250	0.9595				
0.269	24.23	-270.0	2.116	24.23	00.00	.0896	0.8402	23	060	045	12
0.469	21.83	-225.0	1.975	15.81	-15.81	.1026	0.7725				
0.669	21.39	-225.0	1.974	15.48	-15.48	.1082	0.8131				
0.869	22.95	-267.2	1.995	22.92	-01.18	.1073	0.8331				
1.069	23.37	-261.1	1.986	23.11	-03.82	.1187	0.9086				
1.269	24.83	-270.0	1.948	24.83	00.00	.1205	0.8703				
1.469	25.56	-270.0	1.911	25.56	00.00	.1261	0.8591				
1.669	25.95	-225.0	1.972	18.98	-18.98	.1224	0.9169				
1.869	27.82	-282.7	1.983	27.23	06.61	.1245	0.9486				
2.069	26.99	-225.0	1.937	19.80	-19.80	.1317	0.9341				
0.469	-00.39	-030.3	1.912	00.00	00.00	.1351	0.9220	00	075	045	12
0.669	00.26	-090.0	1.914	-00.26	00.00	.1370	0.9385				
1.069	00.23	-284.1	1.992	00.22	00.05	.1270	0.9814				
1.269	00.50	-360.0	1.944	00.00	00.50	.1292	0.9266				
1.669	00.67	-268.5	1.930	00.67	-00.01	.1356	0.9516				
1.869	00.64	-225.0	1.915	00.45	-00.45	.1386	0.9506				
0.469	11.94	-270.0	1.963	11.94	00.00	.1024	0.7565	16	075	045	12

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.669	11.59	-265.2	1.817	11.55	-00.98	.1050	0.6194				
1.069	09.40	-235.8	2.186	07.79	-05.31	.0928	0.9710				
1.269	25.09	-225.0	1.795	18.31	-18.31	.0784	0.4472				
1.669	33.70	-266.5	1.914	33.65	-02.33	.1140	0.7810				
1.869	30.33	-273.2	2.132	30.29	01.87	.1047	1.0055				
0.469	19.23	-270.0	2.026	19.23	00.00	.0916	0.7459	20	075	045	12
0.669	17.79	-253.9	2.076	17.13	-05.08	.0899	0.7918				
1.069	17.65	-234.7	2.343	14.55	-10.41	.0832	1.1130				
1.269	26.40	-241.0	2.191	23.46	-13.53	.0866	0.9138				
1.669	35.15	-255.1	1.980	34.23	-10.26	.1092	0.8282				
1.869	32.83	-225.0	2.090	24.52	-24.52	.1062	0.9556				
0.469	22.65	-264.0	2.065	22.53	-02.49	.0886	0.7670	23	075	045	12
0.669	22.26	-251.7	2.077	21.23	-07.32	.0924	0.8147				
1.069	24.25	-237.0	2.262	20.69	-13.78	.0933	1.1000				
1.269	32.79	-241.7	1.962	29.56	-16.98	.1019	0.7514				
1.669	36.13	-253.4	1.866	34.97	-11.78	.1268	0.8061				
1.869	34.52	-270.0	2.092	34.52	00.00	.1068	0.9642				
0.469	-00.54	-315.0	1.903	00.00	00.00	.1390	0.9356	00	090	045	12
0.669	-00.31	-045.0	1.907	00.00	00.00	.1393	0.9436				
1.069	00.17	-235.6	1.913	00.14	-00.09	.1364	0.9325				
1.269	-00.24	-300.1	1.936	00.00	00.00	.1345	0.9527				
1.669	01.00	-225.0	1.894	00.70	-00.70	.1425	0.9457				
1.869	01.15	-239.0	1.896	00.98	-00.59	.1442	0.9602				
0.469	15.80	-275.4	1.866	15.73	01.52	.1012	0.6434	16	090	045	12
0.669	18.03	-282.7	2.075	17.61	04.09	.0976	0.8583				
1.069	16.68	-293.0	2.135	15.41	06.67	.1019	0.9845				
1.269	19.82	-293.6	2.124	18.27	08.21	.1017	0.9656				
1.669	25.39	-270.0	2.017	25.39	00.00	.1207	0.9694				
1.869	25.49	-270.0	2.060	25.49	00.00	.1183	1.0166				
0.469	17.69	-270.0	2.119	17.69	00.00	.0802	0.7555	20	090	045	12
0.669	20.48	-276.0	2.099	20.37	02.23	.0872	0.7964				
1.069	12.46	-299.4	2.159	10.89	06.19	.0767	0.7698				
1.269	22.47	-329.7	1.672	11.78	19.65	.0764	0.3614				
1.669	39.16	-270.0	2.092	36.19	00.00	.0952	0.8598				
1.869	36.24	-270.0	2.035	36.24	00.00	.1076	0.8887				
0.469	21.17	-262.7	2.207	21.01	-02.81	.0735	0.7948	23	090	045	12
0.669	19.84	-270.0	2.124	19.84	00.00	.0802	0.7613				
1.069	13.62	-231.1	2.192	10.67	-08.65	.0652	0.6888				
1.269	07.52	-234.3	1.733	06.11	-04.40	.0397	0.2062				
1.669	47.93	-262.3	1.759	47.67	-08.44	.1364	0.7363				
1.869	41.88	-270.0	2.263	41.88	00.00	.0849	1.0012				
0.469	-00.11	-243.3	1.916	00.00	00.00	.1403	0.9636	00	105	045	12
1.069	00.67	-270.0	1.923	00.67	00.00	.1376	0.9559				
1.669	07.01	-216.7	1.766	04.20	-05.63	.1438	0.7842				
0.469	19.55	-270.0	1.922	19.55	00.00	.0987	0.6843	16	105	045	12
1.069	21.29	-252.2	2.004	20.35	-06.79	.1119	0.8812				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.669	23.89	-251.6	2.051	22.79	-07.95	.1164	0.9854				
0.469	23.14	-270.0	1.952	23.14	00.00	.0835	0.6066	20	105	045	12
1.069	21.95	-267.6	2.195	21.93	-00.96	.0968	1.0278				
1.669	30.92	-256.1	2.194	30.17	-08.18	.1000	1.0594				
0.469	25.58	-270.0	2.140	25.58	00.00	.0676	0.6579	23	105	045	12
1.069	21.83	-270.0	2.196	21.83	00.00	.0812	0.8627				
1.669	37.34	-261.6	1.982	37.04	-06.35	.1097	0.8343				
0.469	00.97	-225.0	1.902	00.68	-00.68	.1337	0.8990	00	120	045	12
1.069	00.20	-090.0	1.982	-00.20	00.00	.1261	0.9598				
1.669	01.71	-042.0	2.086	-01.14	01.27	.1102	0.9863				
0.469	15.68	-242.9	1.945	14.03	-07.28	.1074	0.7713	16	120	045	12
1.069	24.60	-231.7	1.951	19.76	-15.84	.1062	0.7708				
1.669	24.35	-238.9	1.994	21.18	-13.15	.1146	0.8880				
0.469	20.76	-234.2	1.783	17.09	-12.50	.1109	0.6205	20	120	045	12
1.069	27.23	-237.1	2.062	23.36	-15.61	.0947	0.8154				
1.669	28.70	-240.7	2.141	25.52	-14.99	.1003	0.9782				
0.469	24.38	-240.6	1.791	21.54	-12.54	.0968	0.5487	23	120	045	12
1.069	29.50	-243.6	2.159	26.87	-14.12	.0851	0.8528				
1.669	32.13	-242.7	2.256	29.16	-16.06	.0865	1.0108				
0.269	00.57	-082.7	1.968	-00.56	00.07	.1270	0.9455	00	070	045	13
0.269	00.90	-110.0	1.974	-00.84	-00.30	.1263	0.9491				
0.869	00.89	-028.4	1.954	-00.42	00.78	.1303	0.9491				
0.869	01.02	-034.0	1.998	-00.57	00.84	.1251	0.9760				
1.469	00.24	-315.0	1.976	00.17	00.17	.1274	0.9603				
1.469	00.57	-315.0	1.950	00.40	00.40	.1305	0.9446				
2.069	00.13	-234.9	1.942	00.10	-00.07	.1356	0.9692				
2.069	-00.00	-135.0	1.962	00.00	00.00	.1331	0.9815				
0.269	13.76	-225.0	2.043	09.82	-09.82	.0941	0.7870	16	070	045	13
0.269	14.52	-274.1	2.027	14.48	01.06	.0954	0.7786				
0.869	12.19	-225.0	1.880	08.68	-08.68	.1134	0.6517				
0.869	13.46	-245.7	1.863	12.30	-05.62	.1067	0.6753				
1.469	30.95	-249.5	2.035	29.32	-11.86	.0953	0.7880				
1.469	34.55	-257.7	2.179	33.93	-08.34	.0864	0.8943				
2.069	24.82	-225.0	2.024	18.10	-18.10	.1162	0.9439				
2.069	25.93	-225.0	2.023	18.97	-18.97	.1168	0.9470				
0.269	20.75	-270.0	2.219	20.75	00.00	.0758	0.8353	20	070	045	13
0.269	21.30	-270.0	2.171	21.30	00.00	.0790	0.8071				
0.869	16.61	-241.2	2.111	14.64	-08.17	.0893	0.8310				
0.869	19.77	-247.4	2.015	18.35	-07.86	.0973	0.7795				
1.469	29.92	-254.8	2.002	29.04	-08.58	.1056	0.8285				
1.469	31.02	-248.3	2.241	29.19	-12.53	.0860	0.9809				
2.069	27.71	-225.0	1.966	20.37	-20.37	.1235	0.9162				
2.069	29.38	-270.0	2.026	29.38	00.00	.1178	0.9595				
0.269	25.40	-270.0	2.136	25.40	00.00	.0829	0.8020	23	070	045	13

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.869	24.10	-252.6	1.989	23.11	-07.61	.1019	0.7839				
1.469	29.98	-258.0	1.955	29.43	-06.83	.1151	0.8397				
2.069	29.55	-270.0	1.930	29.55	00.00	.1291	0.9061				
0.269	00.24	-106.5	1.961	-00.23	-00.06	.1285	0.9464	00	075	045	13
0.869	00.89	-028.4	1.946	-00.42	00.78	.1317	0.9473				
1.469	00.25	-299.8	1.921	00.21	00.12	.1339	0.9270				
2.069	00.28	-210.1	1.920	00.14	-00.24	.1391	0.9611				
0.269	13.73	-225.0	2.050	09.80	-09.80	.0932	0.7880	16	075	045	13
0.869	10.18	-270.3	2.174	10.18	00.05	.0941	0.9656				
1.469	38.17	-257.7	1.824	37.52	-09.50	.1043	0.6218				
2.069	26.21	-225.0	2.020	19.19	-19.19	.1163	0.9393				
0.269	21.25	-270.0	2.208	21.25	00.00	.0755	0.8176	20	075	045	13
0.869	18.22	-241.5	1.964	16.13	-08.92	.0936	0.6924				
1.469	34.75	-247.7	2.028	32.69	-14.74	.0954	0.7800				
2.069	30.02	-270.0	2.025	30.02	00.00	.1150	0.9355				
0.269	25.93	-270.0	2.192	25.93	00.00	.0764	0.8075	23	075	045	13
0.869	23.40	-244.0	2.030	21.25	-10.74	.0941	0.7715				
1.469	35.04	-248.0	2.025	33.03	-14.71	.1011	0.8229				
2.069	32.34	-270.0	1.936	32.34	00.00	.1259	0.8919				
0.269	00.23	-104.4	1.972	-00.22	-00.05	.1281	0.9597	00	080	045	13
0.869	00.81	-000.9	1.953	-00.01	00.81	.1314	0.9560				
1.469	00.18	-225.0	1.919	00.12	-00.12	.1351	0.9322				
2.069	00.54	-270.0	1.919	00.54	00.00	.1401	0.9668				
0.269	13.66	-225.0	2.053	09.75	-09.75	.0923	0.7839	16	080	045	13
0.869	12.35	-290.4	2.155	11.59	04.36	.0986	0.9826				
1.469	37.08	-288.3	1.837	35.66	13.34	.0923	0.5615				
2.069	27.31	-225.0	2.040	20.05	-20.05	.1134	0.9440				
0.269	21.02	-270.0	2.223	21.02	00.00	.0735	0.8146	20	080	045	13
0.869	12.95	-258.8	2.295	12.71	-02.55	.0820	1.0166				
1.469	17.70	-249.8	1.533	16.67	-06.28	.1213	0.4674				
2.069	32.25	-270.0	1.998	32.25	00.00	.1157	0.9029				
0.269	25.57	-270.0	2.246	25.57	00.00	.0716	0.8228	23	080	045	13
0.869	23.28	-238.6	1.958	20.16	-12.63	.0912	0.6690				
1.469	38.08	-244.2	1.953	35.20	-18.83	.0990	0.7200				
2.069	35.40	-268.3	2.046	35.38	-01.20	.1121	0.9420				
0.269	00.22	-106.5	1.967	-00.21	-00.06	.1293	0.9613	00	085	045	13
0.869	00.64	-360.0	1.951	00.00	00.64	.1320	0.9576				
1.469	00.33	-225.0	1.920	00.23	-00.23	.1362	0.9413				
2.069	00.97	-214.0	1.912	00.54	-00.80	.1426	0.9731				
0.269	13.83	-225.0	2.043	09.87	-09.87	.0919	0.7688	16	085	045	13
0.869	13.05	-296.4	2.143	11.72	05.88	.0999	0.9771				
1.469	33.10	-295.3	2.049	30.51	15.56	.1041	0.8785				
2.069	26.87	-225.0	2.042	19.71	-19.71	.1131	0.9443				
0.269	20.84	-270.0	2.223	20.84	00.00	.0724	0.8030	20	085	045	13

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	ϕ	RUN
0.869	13.64	-270.0	2.229	13.64	00.00	.0865	0.9685				
2.069	33.87	-270.0	2.033	33.87	00.00	.1100	0.9061				
0.269	25.46	-270.0	2.245	25.46	00.00	.0700	0.8037	23	085	045	13
0.869	15.81	-248.7	2.303	14.77	-05.87	.0779	0.9790				
2.069	37.81	-267.7	2.062	37.78	-01.78	.1074	0.9254				
0.269	00.09	-120.2	1.964	-00.07	-00.04	.1302	0.9635	00	090	045	13
0.869	00.37	-011.6	1.937	-00.07	00.36	.1344	0.9533				
1.469	00.24	-240.1	1.910	00.20	-00.11	.1387	0.9435				
2.069	05.36	-270.0	1.723	05.36	00.00	.1482	0.7572				
0.269	14.21	-270.0	2.032	14.21	00.00	.0915	0.7531	16	090	045	13
0.869	15.24	-295.7	2.116	13.79	06.73	.1026	0.9616				
1.469	27.07	-290.1	2.119	25.63	09.96	.1080	1.0176				
2.069	24.24	-270.0	2.000	24.24	00.00	.1258	0.9838				
0.269	20.40	-270.0	2.217	20.40	00.00	.0722	0.7925	20	090	045	13
0.869	14.69	-275.0	2.226	14.63	01.30	.0865	0.9628				
1.469	35.22	-288.1	2.015	33.86	12.37	.0783	0.6270				
2.069	34.28	-270.0	2.058	34.28	00.00	.1071	0.9167				
0.269	25.12	-270.0	2.268	25.12	00.00	.0678	0.8062	23	090	045	13
0.869	17.23	-258.7	2.269	16.91	-03.47	.0805	0.9599				
2.069	39.19	-268.3	2.156	39.17	-01.38	.0971	0.9693				
0.269	00.29	-120.1	1.954	-00.25	-00.14	.1322	0.9630	00	095	045	13
0.869	00.42	-030.1	1.927	-00.21	00.36	.1369	0.9566				
1.469	00.28	-239.7	1.900	00.24	-00.14	.1424	0.9543				
2.069	04.32	-090.0	2.162	-04.32	00.00	.1003	1.0099				
0.269	14.32	-270.0	2.013	14.32	00.00	.0917	0.7325	16	095	045	13
0.869	17.81	-289.0	2.110	16.89	05.97	.1023	0.9503				
1.469	24.76	-276.0	2.069	24.64	02.76	.1139	0.9920				
2.069	24.75	-265.0	2.016	24.66	-02.30	.1227	0.9846				
0.269	19.50	-270.0	2.212	19.50	00.00	.0729	0.7949	20	095	045	13
0.869	17.13	-285.8	2.211	16.51	04.79	.0883	0.9610				
1.469	36.39	-291.0	2.217	34.52	14.79	.0820	0.9003				
2.069	33.97	-270.0	2.063	33.97	00.00	.1059	0.9142				
0.269	25.09	-270.0	2.285	25.09	00.00	.0656	0.8008	23	095	045	13
0.869	16.37	-270.0	2.273	16.37	00.00	.0795	0.9528				
1.469	28.22	-270.0	1.708	28.22	00.00	.0550	0.2751				
2.069	39.75	-268.3	2.303	39.73	-01.41	.0834	1.0480				
0.269	00.09	-120.2	1.951	-00.07	-00.04	.1331	0.9650	00	100	045	13
0.669	00.50	-090.0	1.957	-00.50	00.00	.1345	0.9845				
0.669	00.20	-014.1	1.926	-00.04	00.19	.1384	0.9657				
0.869	00.17	-360.0	1.927	00.00	00.17	.1377	0.9624				
1.269	-00.10	-270.0	1.920	00.00	00.00	.1392	0.9621				
1.269	-00.33	-180.0	1.930	00.00	00.00	.1379	0.9680				
1.469	00.31	-270.0	1.898	00.31	00.00	.1439	0.9608				
1.869	04.09	-090.0	2.162	-04.09	00.00	.0996	1.0031				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.869	03.57	-038.5	2.161	-02.22	02.79	.0997	1.0023				
2.069	03.46	-090.0	2.149	-03.46	00.00	.1023	1.0095				
0.269	14.65	-270.0	1.986	14.65	00.00	.0924	0.7072	16	100	045	13
0.669	18.25	-270.0	2.058	18.25	00.00	.0987	0.8451				
0.669	18.87	-270.0	2.039	18.87	00.00	.1004	0.8348				
0.869	18.91	-273.3	2.060	18.88	01.13	.1027	0.8827				
1.269	20.70	-270.0	2.113	20.70	00.00	.1062	0.9912				
1.269	21.44	-269.3	2.123	21.43	-00.27	.1054	0.9993				
1.469	22.16	-270.0	2.036	22.16	00.00	.1170	0.9684				
1.869	24.37	-266.9	2.098	24.33	-01.40	.0906	0.8262				
1.869	24.75	-270.0	2.111	24.75	00.00	.1110	1.0337				
2.069	24.90	-258.5	2.029	24.45	-05.28	.1205	0.9872				
0.269	18.90	-269.5	2.192	18.89	-00.17	.0746	0.7878	20	100	045	13
0.669	21.88	-270.0	2.093	21.88	00.00	.0871	0.7877				
0.669	22.03	-270.0	2.102	22.03	00.00	.0864	0.7930				
0.869	20.21	-280.0	2.178	19.92	03.65	.0900	0.9300				
1.269	26.92	-270.0	2.004	26.92	00.00	.1013	0.7979				
1.269	24.29	-288.0	2.150	23.22	07.93	.0880	0.8701				
1.469	30.53	-275.6	2.204	30.41	03.29	.0944	1.0161				
1.869	31.51	-270.0	2.183	31.51	00.00	.0983	1.0236				
1.869	33.35	-270.0	2.242	33.35	00.00	.0947	1.0811				
2.069	33.69	-262.2	2.114	33.64	-05.20	.1041	0.9735				
0.269	25.66	-270.0	2.293	25.66	00.00	.0636	0.7858	23	100	045	13
0.669	21.85	-270.0	2.196	21.85	00.00	.0769	0.8174				
0.869	17.78	-271.0	2.277	17.77	00.32	.0772	0.9307				
1.269	19.44	-301.4	2.368	16.76	10.41	.0636	0.8843				
1.469	34.48	-284.1	1.580	33.66	09.49	.1223	0.5045				
1.869	38.20	-270.0	2.179	38.20	00.00	.0937	0.9705				
2.069	39.51	-260.2	2.397	39.09	-07.98	.0807	1.1738				
0.269	00.23	-180.0	1.946	00.00	-00.23	.1337	0.9619	00	105	045	13
0.669	00.49	-354.7	1.931	00.04	00.48	.1383	0.9725				
0.869	00.17	-360.0	1.922	00.00	00.17	.1390	0.9633				
1.269	00.10	-270.0	1.917	00.10	00.00	.1396	0.9604				
1.469	00.75	-270.0	1.903	00.75	00.00	.1423	0.9580				
1.869	03.11	-036.9	2.134	-01.86	02.48	.1031	0.9945				
2.069	02.78	-090.0	2.135	-02.78	00.00	.1044	1.0085				
0.269	14.85	-260.4	1.959	14.65	-02.53	.0934	0.6853	16	105	045	13
0.669	19.19	-270.0	2.021	19.19	00.00	.1008	0.8146				
0.869	19.52	-270.0	2.031	19.52	00.00	.1042	0.8552				
1.269	21.64	-268.6	2.114	21.63	-00.55	.1054	0.9860				
1.469	22.38	-265.7	2.060	22.32	-01.76	.1135	0.9752				
1.869	24.43	-266.4	2.110	24.38	-01.63	.1112	1.0333				
2.069	24.30	-252.3	2.030	23.27	-07.81	.1202	0.9853				
0.269	19.35	-258.2	2.139	18.97	-04.10	.0789	0.7673	20	105	045	13
0.669	22.14	-270.0	2.100	22.14	00.00	.0863	0.7892				
0.869	21.03	-270.0	2.160	21.03	00.00	.0905	0.9095				
1.269	24.90	-270.0	2.149	24.90	00.00	.0964	0.9517				
1.469	27.61	-270.0	2.056	27.61	00.00	.1095	0.9348				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	ϕ	RUN
1.869	30.88	-270.0	2.240	30.88	00.00	.0966	1.0993				
2.069	32.56	-254.4	2.085	31.59	-09.74	.1091	0.9744				
0.269	26.55	-255.0	2.142	25.76	-07.36	.0708	0.6914	23	105	045	13
0.669	24.19	-270.0	2.173	24.19	00.00	.0766	0.7850				
0.869	21.41	-270.0	2.226	21.41	00.00	.0792	0.8827				
1.269	27.61	-277.1	2.141	27.42	03.69	.0800	0.7801				
1.469	33.50	-271.0	2.077	33.49	00.66	.0939	0.8286				
1.869	38.41	-270.0	2.341	38.41	00.00	.0815	1.0865				
2.069	40.10	-258.1	2.655	39.48	-09.85	.0652	1.4162				
0.269	-00.10	-135.0	1.947	00.00	00.00	.1340	0.9658	00	110	045	13
0.669	00.69	-330.4	1.930	00.34	00.60	.1376	0.9654				
0.869	00.21	-330.2	1.921	00.10	00.18	.1398	0.9678				
1.269	01.47	-270.0	1.905	01.47	00.00	.1357	0.9164				
1.469	00.88	-069.9	1.988	-00.82	00.30	.1256	0.9650				
1.869	02.30	-032.3	2.114	-01.22	01.94	.1060	0.9909				
2.069	02.22	-090.0	2.108	-02.22	00.00	.1080	0.9999				
0.269	14.39	-250.1	1.942	13.56	-04.99	.0967	0.6917	16	110	045	13
0.669	20.18	-258.5	2.019	19.80	-04.19	.1001	0.8060				
0.869	20.78	-260.5	2.025	20.51	-03.53	.1031	0.8388				
1.269	23.25	-255.3	2.109	22.56	-06.22	.1035	0.9597				
1.469	22.53	-255.4	2.091	21.87	-05.96	.1097	0.9896				
1.869	24.23	-256.8	2.115	23.66	-05.86	.1110	1.0387				
2.069	23.83	-247.4	2.023	22.18	-09.63	.1200	0.9734				
0.269	18.94	-252.0	2.109	18.07	-06.05	.0825	0.7658	20	110	045	13
0.669	22.36	-270.0	2.126	22.36	00.00	.0856	0.8144				
0.869	22.06	-270.0	2.154	22.06	00.00	.0904	0.8997				
1.269	27.20	-264.4	2.175	27.08	-02.87	.0950	0.9769				
1.469	27.92	-263.1	2.101	27.74	-03.64	.1051	0.9620				
1.869	30.53	-261.6	2.262	30.26	-04.92	.0954	1.1234				
2.069	30.68	-249.6	2.158	29.07	-11.68	.1041	1.0421				
0.269	25.49	-245.4	2.122	23.43	-11.22	.0761	0.7197	23	110	045	13
0.669	26.04	-270.0	2.158	26.04	00.00	.0753	0.7534				
0.869	24.05	-270.0	2.192	24.05	00.00	.0806	0.8507				
1.269	28.82	-270.0	2.162	28.82	00.00	.0866	0.8721				
1.469	31.48	-270.0	2.186	31.48	00.00	.0914	0.9557				
1.869	34.84	-266.4	2.271	34.78	-02.50	.0893	1.0669				
2.069	37.80	-251.6	2.206	36.35	-13.75	.0931	1.0059				
0.269	-00.11	-135.0	1.930	00.00	00.00	.1372	0.9630	00	115	045	13
0.669	-00.14	-225.0	1.955	00.00	00.00	.1337	0.9760				
0.869	00.54	-334.3	1.955	00.23	00.48	.1310	0.9563				
1.269	01.05	-072.8	2.004	-01.00	00.31	.1232	0.9704				
1.469	00.55	-115.7	2.021	-00.49	-00.23	.1214	0.9812				
1.869	02.04	-030.1	2.091	-01.02	01.76	.1095	0.9875				
2.069	01.58	-090.0	2.081	-01.58	00.00	.1119	0.9937				
0.269	14.26	-246.3	1.912	13.10	-05.83	.1014	0.6920	16	115	045	13
0.669	19.72	-248.0	2.049	18.38	-07.64	.0990	0.8357				
0.869	21.11	-249.3	2.020	19.85	-07.77	.1017	0.8215				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.269	23.13	-246.8	2.074	21.43	-09.55	.1034	0.9087				
1.469	22.63	-244.9	2.032	20.68	-10.02	.1087	0.8948				
1.869	24.00	-249.5	2.062	22.63	-08.86	.1110	0.9562				
2.069	23.12	-242.5	2.004	20.74	-11.15	.1207	0.9510				
0.269	18.80	-247.3	2.064	17.43	-07.48	.0870	0.7527	20	115	045	13
0.669	23.88	-260.3	2.122	23.57	-04.26	.0854	0.8086				
0.869	24.65	-261.0	2.108	24.38	-04.10	.0903	0.8356				
1.269	27.27	-254.1	2.194	26.37	-08.03	.0926	0.9805				
1.469	27.62	-253.7	2.151	26.66	-08.35	.0993	0.9843				
1.869	29.89	-255.2	2.237	29.06	-08.35	.0955	1.0821				
2.069	29.88	-245.6	2.102	27.62	-13.35	.1071	0.9825				
0.269	24.82	-244.5	2.234	22.65	-11.26	.0755	0.8518	23	115	045	13
0.669	27.20	-268.6	2.171	27.19	-00.72	.0739	0.7548				
0.869	25.64	-270.0	2.182	25.64	00.00	.0808	0.8395				
1.269	29.89	-263.0	2.258	29.70	-04.00	.0821	0.9605				
1.469	31.62	-261.3	2.241	31.32	-05.32	.0873	0.9956				
1.869	32.99	-259.1	2.281	32.51	-06.99	.0874	1.0622				
2.069	35.28	-246.8	2.165	33.03	-15.57	.0969	0.9814				
0.269	02.23	-225.0	1.972	01.57	-01.57	.1346	1.0086	00	120	045	13
0.669	00.91	-070.2	2.021	-00.85	00.30	.1207	0.9751				
0.869	01.54	-090.0	2.005	-01.54	00.00	.1245	0.9814				
1.269	00.87	-061.9	2.011	-00.76	00.41	.1227	0.9769				
1.469	01.37	-090.0	2.005	-01.37	00.00	.1177	0.9283				
1.869	01.42	-029.8	2.064	-00.70	01.23	.1134	0.9802				
2.069	01.24	-090.0	2.059	-01.24	00.00	.1154	0.9895				
0.269	13.91	-253.4	1.903	13.35	-04.04	.1020	0.6868	16	120	045	13
0.669	18.80	-240.1	2.030	16.44	-09.63	.1022	0.8376				
0.869	21.60	-239.4	1.961	18.81	-11.39	.1033	0.7608				
1.269	23.15	-240.5	1.985	20.41	-11.88	.1051	0.8036				
1.469	22.55	-240.5	2.046	19.87	-11.55	.1055	0.8869				
1.869	23.84	-247.4	2.079	22.19	-09.63	.1091	0.9652				
2.069	23.03	-239.8	1.994	20.17	-12.06	.1194	0.9252				
0.269	18.38	-243.6	2.018	16.57	-08.40	.0919	0.7400	20	120	045	13
0.669	23.75	-250.1	2.095	22.47	-08.51	.0860	0.7805				
0.869	24.75	-250.5	2.099	23.48	-08.74	.0894	0.8157				
1.269	27.33	-247.6	2.193	25.53	-11.14	.0912	0.9639				
1.469	27.42	-247.5	2.178	25.60	-11.22	.0951	0.9815				
1.869	29.58	-250.8	2.209	28.19	-10.57	.0953	1.0332				
2.069	29.47	-242.7	2.063	26.66	-14.53	.1085	0.9362				
0.269	25.05	-244.8	2.222	22.92	-11.25	.0768	0.8505	23	120	045	13
0.669	28.42	-261.0	2.146	28.12	-04.83	.0747	0.7345				
0.869	27.62	-262.3	2.197	27.40	-04.01	.0788	0.8385				
1.269	29.83	-254.4	2.229	28.91	-08.76	.0825	0.9239				
1.469	30.81	-252.8	2.256	29.66	-10.00	.0842	0.9823				
1.869	31.98	-253.9	2.254	30.95	-09.82	.0873	1.0156				
2.069	34.42	-244.0	2.112	31.62	-16.71	.0999	0.9314				
0.269	00.70	-126.4	1.994	-00.56	-00.41	.1247	0.9667	00	125	045	13

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_0 = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	β	RUN
0.669	01.06	-060.2	2.036	-00.92	00.52	.1188	0.9834				
0.869	01.77	-030.0	2.023	-00.88	01.53	.1225	0.9935				
1.269	00.69	-053.6	2.000	-00.55	00.40	.1246	0.9746				
1.469	01.82	-090.0	2.048	-01.82	00.00	.1146	0.9662				
1.869	00.89	-028.1	2.041	-00.41	00.78	.1173	0.9783				
2.069	00.70	-036.4	2.030	-00.41	00.56	.1197	0.9815				
0.269	12.83	-270.0	1.870	12.83	00.00	.1035	0.6623	16	125	045	13
0.669	18.57	-234.1	2.062	15.22	-11.14	.1017	0.8768				
0.869	20.81	-234.6	2.005	17.21	-12.41	.1030	0.8118				
1.269	23.43	-238.7	2.015	20.31	-12.68	.1011	0.8096				
1.469	22.14	-237.5	2.071	18.94	-12.33	.1017	0.8883				
1.869	23.36	-244.5	2.078	21.29	-10.53	.1094	0.9656				
2.069	22.64	-238.1	1.996	19.49	-12.42	.1190	0.9257				
0.269	17.98	-239.9	1.962	15.68	-09.24	.0985	0.7267	20	125	045	13
0.669	22.44	-238.0	1.997	19.30	-12.34	.0950	0.7400				
0.869	24.32	-242.5	2.079	21.84	-11.78	.0897	0.7938				
1.269	27.86	-241.6	2.137	24.93	-14.11	.0891	0.8637				
1.469	28.07	-241.7	2.140	25.15	-14.18	.0920	0.8955				
1.869	28.92	-246.3	2.191	26.83	-12.52	.0941	0.9924				
2.069	29.17	-240.4	2.058	25.88	-15.41	.1057	0.9055				
0.269	24.22	-245.0	2.231	22.18	-10.76	.0773	0.8671	23	125	045	13
0.669	24.97	-240.3	1.922	22.02	-12.99	.0924	0.6401				
0.869	28.66	-252.7	2.139	27.55	-09.23	.0790	0.7673				
1.269	29.75	-247.2	2.229	27.78	-12.48	.0808	0.9039				
1.469	30.04	-247.0	2.246	28.02	-12.73	.0825	0.9481				
1.869	31.60	-249.2	2.293	29.90	-12.32	.0828	1.0237				
2.069	33.83	-241.2	2.105	30.42	-17.89	.0979	0.9019				
0.269	00.83	-045.0	2.002	-00.58	00.58	.1228	0.9637	00	130	045	13
0.469	00.84	-045.0	2.024	-00.59	00.59	.1191	0.9673				
0.469	01.40	-090.0	2.051	-01.40	00.00	.1163	0.9849				
0.669	01.21	-064.9	2.061	-01.09	00.51	.1160	0.9978				
0.869	01.24	-053.5	2.024	-00.99	00.73	.1204	0.9776				
1.069	00.47	-045.0	1.970	-00.33	00.33	.1275	0.9521				
1.069	-00.03	-030.2	1.948	00.00	00.00	.1301	0.9391				
1.269	00.56	-090.0	1.989	-00.56	00.00	.1264	0.9718				
1.469	01.59	-090.0	2.029	-01.59	00.00	.1183	0.9685				
1.669	00.89	-045.0	2.044	-00.62	00.62	.1172	0.9824				
1.669	00.52	-032.1	2.033	-00.27	00.44	.1184	0.9752				
1.869	00.41	-011.6	2.013	-00.08	00.40	.1216	0.9706				
2.069	00.04	-090.0	2.009	-00.04	00.00	.1231	0.9761				
0.269	10.71	-270.0	1.856	10.71	00.00	.1051	0.6578	16	130	045	13
0.469	12.06	-225.0	1.923	08.59	-08.59	.1022	0.7097				
0.469	11.16	-190.5	1.855	02.05	-10.97	.1090	0.6815				
0.669	18.87	-227.5	2.069	14.14	-13.00	.0973	0.8481				
0.869	21.88	-230.0	2.060	17.09	-14.47	.1007	0.8654				
1.069	25.91	-227.6	2.062	19.73	-18.13	.1001	0.8623				
1.069	27.50	-225.0	2.050	20.20	-20.20	.1018	0.8630				
1.269	24.18	-238.2	2.036	20.88	-13.31	.1000	0.8278				
1.469	23.06	-236.9	2.076	19.62	-13.08	.1010	0.8897				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.669	24.01	-235.9	2.074	20.24	-14.02	.1061	0.9314				
1.669	24.72	-236.8	2.061	21.06	-14.14	.1075	0.9253				
1.869	23.29	-243.5	2.100	21.06	-10.87	.1063	0.9719				
2.069	22.54	-236.3	2.002	19.04	-12.96	.1177	0.9236				
0.269	17.37	-239.9	1.980	15.14	-08.91	.1007	0.7635	20	130	045	13
0.469	16.14	-225.0	1.780	11.56	-11.56	.1144	0.6378				
0.469	18.34	-225.0	1.801	13.19	-13.19	.1122	0.6454				
0.669	21.53	-230.3	1.916	16.88	-14.14	.1025	0.7044				
0.869	24.86	-232.2	1.960	20.10	-15.85	.0973	0.7156				
1.069	30.06	-225.0	2.049	22.25	-22.25	.0918	0.7754				
1.069	31.04	-215.0	1.985	19.04	-26.24	.0981	0.7501				
1.269	28.54	-236.3	2.039	24.34	-16.79	.0912	0.7583				
1.469	28.38	-237.3	2.108	24.44	-16.27	.0902	0.8345				
1.669	29.05	-232.2	2.164	23.69	-18.80	.0886	0.8952				
1.669	30.65	-236.3	2.201	26.24	-18.20	.0867	0.9280				
1.869	29.75	-242.8	2.164	26.94	-14.64	.0879	0.8878				
2.069	29.70	-237.6	2.053	25.71	-16.99	.0994	0.8446				
0.269	22.33	-248.0	2.217	20.84	-08.74	.0804	0.8820	23	130	045	13
0.469	20.92	-237.8	1.933	17.92	-11.51	.0943	0.6646				
0.669	23.29	-232.5	1.972	18.85	-14.68	.0958	0.7252				
0.869	25.59	-236.8	1.985	21.83	-14.69	.0928	0.7094				
1.069	29.46	-231.3	1.977	23.78	-19.45	.0969	0.7323				
1.269	30.22	-240.8	2.234	26.95	-15.86	.0785	0.8861				
1.469	30.41	-242.2	2.287	27.43	-15.30	.0777	0.9517				
1.669	32.46	-239.2	2.212	28.65	-18.04	.0855	0.9317				
1.869	33.31	-245.7	2.540	30.91	-15.13	.0665	1.2086				
2.069	33.56	-239.4	2.104	29.72	-18.65	.0944	0.8689				
0.269	00.99	-090.0	2.010	-00.99	00.00	.1216	0.9666	00	135	045	13
0.469	00.66	-090.0	2.018	-00.66	00.00	.1200	0.9656				
0.669	01.13	-090.0	2.050	-01.13	00.00	.1166	0.9864				
0.869	00.90	-045.0	2.014	-00.63	00.63	.1217	0.9734				
1.069	00.01	-090.0	2.001	-00.01	00.00	.1245	0.9758				
1.269	00.28	-030.2	1.979	-00.14	00.24	.1283	0.9715				
1.469	01.08	-029.8	1.997	-00.53	00.93	.1234	0.9605				
1.669	00.09	-030.2	2.000	-00.04	00.07	.1235	0.9664				
1.869	-00.10	-333.0	1.989	00.00	00.00	.1253	0.9636				
2.069	-00.70	-360.0	1.983	00.00	00.00	.1271	0.9680				
0.269	06.67	-241.6	1.716	05.87	-03.18	.1111	0.5620	16	135	045	13
0.469	12.33	-188.3	1.690	01.80	-12.20	.1120	0.5447				
0.669	20.00	-214.9	1.783	11.76	-16.62	.1007	0.5639				
0.869	23.30	-226.7	2.065	17.40	-16.45	.0985	0.8522				
1.069	27.86	-225.0	2.021	20.49	-20.49	.1026	0.8294				
1.269	24.65	-236.6	2.117	20.96	-14.17	.0960	0.9017				
1.469	23.07	-235.6	2.147	19.36	-13.52	.0963	0.9476				
1.669	23.86	-235.7	2.080	20.07	-13.99	.1052	0.9327				
1.869	22.79	-242.0	2.128	20.35	-11.15	.1030	0.9832				
2.069	21.96	-235.3	2.021	18.34	-12.92	.1153	0.9316				
0.269	14.53	-246.0	2.029	13.32	-06.01	.1002	0.8206	20	135	045	13
0.469	15.15	-225.0	1.908	10.83	-10.83	.1109	0.7524				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
0.669	21.10	-221.9	1.852	14.45	-16.02	.1101	0.6847				
0.869	24.47	-224.2	1.925	17.60	-18.06	.1047	0.7297				
1.069	30.80	-215.3	1.991	19.00	-25.94	.0978	0.7548				
1.269	30.23	-231.4	2.098	24.48	-19.97	.0860	0.7839				
1.469	29.65	-233.2	2.136	24.50	-18.82	.0850	0.8231				
1.669	30.93	-232.4	2.178	25.39	-20.08	.0823	0.8504				
1.869	29.96	-240.6	2.222	26.66	-15.79	.0817	0.9043				
2.069	30.03	-235.3	2.067	25.41	-18.21	.0941	0.8176				
0.269	19.57	-251.6	2.221	18.64	-06.40	.0830	0.9176	23	135	045	13
0.469	19.31	-227.6	1.894	14.50	-13.29	.1005	0.6674				
0.669	23.71	-225.0	1.922	17.25	-17.25	.0993	0.6878				
0.869	25.92	-227.8	1.956	19.80	-18.08	.0995	0.7266				
1.069	31.40	-219.2	1.995	21.09	-25.31	.0926	0.7190				
1.269	30.92	-231.8	2.076	25.20	-20.32	.0876	0.7722				
1.469	31.01	-235.6	2.226	26.38	-18.75	.0760	0.8468				
1.669	34.37	-233.0	2.105	28.64	-22.37	.0881	0.8118				
1.869	32.23	-241.5	2.458	28.98	-16.74	.0663	1.0610				
2.069	33.73	-237.4	2.117	29.35	-19.78	.0894	0.8394				
0.269	00.77	-060.0	2.018	-00.66	00.38	.1215	0.9775	00	140	045	13
0.469	00.25	-060.1	2.025	-00.21	00.12	.1207	0.9821				
0.669	00.67	-088.1	2.049	-00.66	00.02	.1183	0.9989				
0.869	00.88	-045.0	2.041	-00.62	00.62	.1195	0.9967				
1.069	-00.60	-090.0	1.990	00.00	00.00	.1257	0.9682				
1.269	-00.08	-045.0	1.982	00.00	00.00	.1257	0.9561				
1.469	00.91	-020.7	1.948	-00.32	00.85	.1287	0.9289				
1.669	-00.08	-315.0	1.945	00.00	00.00	.1299	0.9330				
1.869	-00.18	-313.0	1.945	00.00	00.00	.1311	0.9419				
2.069	-00.09	-154.7	1.971	00.00	00.00	.1290	0.9654				
0.269	03.75	-209.0	1.610	01.82	-03.28	.1179	0.5088	16	140	045	13
0.469	16.72	-169.5	1.595	-03.13	-16.45	.1303	0.5498				
0.669	18.98	-195.1	1.793	05.12	-18.36	.1033	0.5872				
0.869	23.83	-226.0	1.965	17.62	-17.05	.0950	0.7042				
1.069	28.36	-225.0	2.069	20.89	-20.89	.0991	0.8632				
1.269	25.54	-234.3	2.130	21.20	-15.58	.0946	0.9065				
1.469	23.17	-233.8	2.168	19.05	-14.18	.0936	0.9513				
1.669	23.30	-234.0	2.026	18.95	-14.00	.1096	0.8935				
1.869	21.42	-240.7	2.103	18.88	-10.86	.1055	0.9692				
2.069	21.67	-233.0	2.039	16.93	-12.92	.1149	0.9546				
0.269	11.53	-262.8	1.634	11.44	-01.46	.1093	0.4885	20	140	045	13
0.469	12.67	-217.8	1.719	07.84	-10.07	.1128	0.5731				
0.669	20.02	-213.1	1.865	11.25	-16.97	.1066	0.6769				
0.869	24.91	-215.0	1.886	14.91	-20.82	.1053	0.6905				
1.069	31.25	-210.4	2.078	17.07	-27.62	.0876	0.7738				
1.269	33.47	-219.7	1.918	22.89	-26.96	.1017	0.7012				
1.469	30.69	-226.3	2.210	23.22	-22.29	.0787	0.8547				
1.669	31.65	-230.5	2.172	25.43	-21.40	.0839	0.8591				
1.869	27.92	-240.9	2.093	24.84	-14.45	.0906	0.8196				
2.069	27.31	-235.0	1.978	22.92	-16.49	.1052	0.7955				
0.269	16.52	-256.4	2.028	18.03	-04.50	.0924	0.7548	23	140	045	13

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	ϕ	RUN
0.469	15.34	-222.2	2.043	10.44	-11.48	.0982	0.8218				
0.669	23.39	-216.7	1.963	14.49	-19.12	.0988	0.7299				
0.869	26.45	-220.9	1.932	18.04	-20.60	.0980	0.6903				
1.069	30.15	-213.8	2.124	17.90	-25.76	.0863	0.8198				
1.269	31.18	-222.1	2.165	22.08	-24.18	.0830	0.8404				
1.469	32.31	-224.2	2.125	23.79	-24.38	.0847	0.8054				
1.669	37.32	-225.0	2.142	28.01	-28.01	.0876	0.8555				
1.869	32.73	-237.0	2.242	28.32	-19.29	.0784	0.8947				
2.069	31.97	-235.0	2.231	27.07	-19.69	.0818	0.9177				
0.269	00.59	-059.9	2.006	-00.51	00.29	.1228	0.9699	00	145	045	13
0.469	-00.04	-059.8	2.007	00.00	00.00	.1227	0.9706				
0.669	00.39	-061.9	2.023	-00.34	00.18	.1212	0.9830				
0.869	00.68	-053.6	2.040	-00.54	00.40	.1199	0.9981				
1.069	-00.20	-133.1	2.022	00.00	00.00	.1223	0.9904				
1.269	00.29	-030.3	2.006	-00.14	00.25	.1234	0.9751				
1.469	00.25	-343.9	1.955	00.06	00.24	.1288	0.9399				
1.669	00.60	-300.1	1.923	00.51	00.30	.1334	0.9263				
1.869	00.38	-279.5	1.912	00.37	00.06	.1361	0.9287				
2.069	00.06	-199.7	1.936	00.02	-00.05	.1344	0.9522				
0.269	05.16	-149.0	1.739	-02.66	-04.42	.1150	0.6020	16	145	045	13
0.469	16.22	-157.0	1.889	-06.48	-14.99	.1151	0.7585				
0.669	23.07	-180.0	1.713	00.00	-23.07	.1189	0.5988				
0.869	23.85	-221.6	1.884	16.35	-18.29	.0947	0.6192				
1.069	27.68	-220.9	2.103	18.95	-21.62	.0915	0.8410				
1.269	25.70	-231.7	2.046	20.69	-16.60	.1001	0.8417				
1.469	22.72	-232.0	2.078	18.26	-14.45	.0991	0.8751				
1.669	23.34	-232.3	1.939	18.85	-14.78	.1176	0.8367				
1.869	20.64	-238.6	2.044	17.82	-11.10	.1106	0.9272				
2.069	20.07	-229.6	2.004	15.54	-13.32	.1189	0.9362				
0.269	04.69	-270.0	1.684	04.69	00.00	.1066	0.5134	20	145	045	13
0.469	10.84	-180.0	1.694	00.00	-10.84	.1128	0.5516				
0.669	20.30	-192.7	1.817	04.64	-19.84	.1048	0.6182				
0.869	25.79	-205.5	1.922	11.75	-23.56	.0965	0.6693				
1.069	33.36	-203.4	2.170	14.65	-31.14	.0819	0.8358				
1.269	32.92	-216.1	2.014	20.87	-27.61	.0925	0.7402				
1.469	34.05	-218.5	2.049	22.81	-27.87	.0874	0.7379				
1.669	33.35	-228.7	1.767	26.30	-23.47	.1155	0.6305				
1.869	33.05	-238.7	2.000	26.30	-16.72	.0962	0.7525				
2.069	27.63	-232.6	1.998	22.57	-17.63	.1066	0.8313				
0.269	13.67	-265.7	1.895	13.63	-01.04	.1037	0.6897	23	145	045	13
0.469	11.31	-211.0	2.056	05.88	-09.72	.0946	0.8073				
0.669	22.12	-212.3	1.973	12.25	-18.96	.0943	0.7072				
0.869	23.11	-213.9	1.891	16.59	-23.91	.0976	0.6449				
1.069	31.59	-209.8	2.146	16.99	-28.08	.0798	0.7836				
1.269	31.55	-215.8	2.132	19.75	-26.47	.0816	0.7847				
1.469	32.26	-216.5	2.132	20.57	-26.90	.0823	0.7917				
1.669	35.15	-216.3	2.050	22.62	-29.57	.0919	0.7771				
1.869	34.35	-230.1	2.119	27.66	-23.67	.0854	0.8049				
2.069	33.04	-228.5	2.084	25.97	-23.31	.0881	0.7851				
0.269	00.37	-045.4	2.000	-00.26	00.26	.1235	0.9664	00	150	045	13

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 · $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
0.469	-00.19	-045.0	1.992	00.00	00.00	.1244	0.9615				
0.669	00.30	-059.9	2.012	-00.25	00.15	.1225	0.9761				
0.869	00.57	-045.0	2.013	-00.40	00.40	.1223	0.9768				
1.069	-00.45	-135.0	1.983	00.00	00.00	.1253	0.9549				
1.269	00.02	-045.0	2.011	-00.01	00.01	.1223	0.9735				
1.469	-00.12	-360.0	1.973	00.00	00.00	.1285	0.9639				
1.669	-00.06	-239.7	1.971	00.00	00.00	.1297	0.9706				
1.869	00.33	-226.6	1.977	00.24	-00.22	.1319	0.9963				
2.069	00.53	-270.0	1.936	00.53	00.00	.1379	0.9768				
0.269	06.77	-135.0	1.837	-04.79	-04.79	.1144	0.6953	16	150	045	13
0.469	14.73	-148.7	2.148	-07.77	-12.66	.1036	1.0215				
0.669	20.83	-180.0	2.270	00.00	-20.83	.0892	1.0640				
0.869	27.49	-207.2	1.933	13.37	-24.83	.0990	0.6981				
1.069	31.40	-211.6	1.860	17.73	-27.46	.0997	0.6284				
1.269	25.25	-229.1	1.945	19.62	-17.16	.1071	0.7694				
1.469	22.74	-226.3	2.049	16.85	-16.14	.1074	0.9073				
1.669	22.52	-231.7	1.927	18.02	-14.41	.1232	0.8605				
1.869	19.79	-237.7	2.017	16.91	-10.88	.1156	0.9290				
2.069	19.32	-225.3	1.999	13.99	-13.85	.1201	0.9383				
0.269	01.02	-242.1	1.694	00.90	-00.47	.1095	0.5355	20	150	045	13
0.469	12.88	-153.1	1.720	-05.90	-11.52	.1161	0.5906				
0.669	23.12	-176.1	1.911	-01.66	-23.07	.0996	0.6786				
0.869	30.40	-191.8	2.037	06.84	-29.86	.0863	0.7152				
1.069	41.51	-203.2	1.385	19.22	-39.12	.1488	0.4635				
1.269	36.22	-211.8	1.719	21.10	-31.90	.1090	0.5535				
1.469	34.34	-216.1	2.068	21.92	-28.89	.0898	0.7820				
1.669	32.86	-224.5	1.853	24.35	-24.73	.1215	0.7570				
1.869	26.77	-236.4	1.980	22.79	-15.59	.1067	0.8091				
2.069	25.45	-229.7	1.998	19.94	-17.10	.1121	0.8742				
0.269	08.45	-270.0	1.889	08.45	00.00	.1022	0.6731	23	150	045	13
0.469	11.15	-183.4	1.844	00.67	-11.13	.1001	0.6150				
0.669	21.35	-203.7	1.990	08.92	-19.69	.0874	0.6733				
0.869	27.46	-209.6	1.964	14.39	-24.31	.0891	0.6596				
1.069	44.72	-208.0	1.833	24.93	-41.16	.0988	0.5969				
1.269	32.37	-210.1	2.015	17.63	-28.74	.0858	0.6870				
1.469	33.71	-211.9	2.111	19.42	-29.52	.0808	0.7517				
1.669	35.37	-212.4	1.999	20.82	-30.93	.0916	0.7150				
1.869	33.92	-220.2	1.890	23.46	-27.18	.0994	0.6558				
2.069	33.08	-217.3	1.615	21.54	-27.39	.1279	0.5559				
0.269	00.24	-045.0	2.002	-00.17	00.17	.1236	0.9701	00	155	045	13
0.469	-00.25	-029.8	1.988	00.00	00.00	.1255	0.9643				
0.669	-00.19	-047.0	2.008	00.00	00.00	.1237	0.9799				
0.869	00.45	-090.0	2.000	-00.45	00.00	.1250	0.9778				
1.069	-00.27	-210.0	1.993	00.00	00.00	.1258	0.9735				
1.269	-00.19	-043.0	2.005	00.00	00.00	.1244	0.9811				
1.469	-00.43	-090.0	1.984	00.00	00.00	.1276	0.9739				
1.669	00.23	-209.7	1.990	00.11	-00.19	.1279	0.9857				
1.869	00.44	-225.0	1.959	00.31	-00.31	.1327	0.9742				
2.069	00.93	-135.0	1.948	-00.65	-00.65	.1348	0.9734				
0.269	09.00	-121.6	1.789	-07.68	-04.74	.1167	0.6590	16	155	045	13

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	14.30	-132.4	2.187	-10.66	-09.75	.0961	1.0071				
0.669	18.33	-161.8	2.564	-05.90	-17.47	.0663	1.2509				
0.869	28.55	-205.5	2.173	13.18	-26.15	.0823	0.8442				
1.069	28.85	-216.5	1.899	18.14	-23.88	.0993	0.6542				
1.269	25.42	-229.2	1.918	19.78	-17.25	.1074	0.7400				
1.469	22.83	-229.7	1.996	17.80	-15.23	.1124	0.8743				
1.669	21.27	-233.3	1.884	17.33	-13.09	.1293	0.8453				
1.869	18.65	-237.3	1.966	15.85	-10.33	.1223	0.9077				
2.069	18.33	-225.0	1.986	13.18	-13.18	.1229	0.9411				
0.269	00.86	-135.0	1.735	-00.60	-00.60	.1123	0.5843	20	155	045	13
0.469	12.59	-135.0	1.836	-08.97	-08.97	.1120	0.6800				
0.669	19.33	-154.5	2.167	-08.58	-17.56	.0816	0.8292				
0.869	28.68	-182.1	2.149	01.14	-28.66	.0765	0.7548				
1.069	22.91	-201.5	2.322	08.80	-21.46	.0559	0.7234				
1.269	30.61	-209.7	2.083	16.33	-27.19	.0729	0.6490				
1.469	29.86	-221.0	2.055	20.63	-23.42	.0882	0.7516				
1.669	31.39	-227.8	1.868	24.32	-22.28	.1176	0.7500				
1.869	26.58	-235.0	1.929	22.28	-16.01	.1131	0.7924				
2.069	25.13	-225.4	2.010	18.46	-18.23	.1111	0.8832				
0.269	02.91	-294.9	1.759	02.64	01.22	.1033	0.5578	23	155	045	13
0.469	12.29	-153.5	1.807	-05.55	-11.03	.1001	0.5814				
0.669	20.99	-187.3	1.951	02.79	-20.83	.0833	0.6041				
0.869	28.59	-201.5	1.907	11.29	-26.88	.0845	0.5725				
1.069	25.87	-196.6	2.005	07.88	-24.92	.0733	0.5780				
1.269	31.96	-203.5	1.965	13.97	-29.77	.0798	0.5911				
1.469	35.82	-206.6	2.144	17.90	-32.83	.0722	0.7071				
1.669	34.40	-208.3	1.916	17.98	-31.08	.0912	0.6264				
1.869	35.10	-220.1	1.731	24.35	-28.26	.1138	0.5887				
2.069	34.34	-216.9	1.696	22.30	-28.64	.1303	0.6395				
0.269	00.15	-056.0	2.006	-00.12	00.08	.1232	0.9733	00	160	045	13
0.469	-00.24	-030.2	1.986	00.00	00.00	.1258	0.9627				
0.669	-00.40	-059.9	1.994	00.00	00.00	.1251	0.9697				
0.869	00.15	-035.1	1.982	-00.08	00.12	.1267	0.9642				
1.069	-00.26	-240.2	1.985	00.00	00.00	.1268	0.9691				
1.269	-00.40	-030.6	1.986	00.00	00.00	.1273	0.9747				
1.469	-00.41	-140.9	1.966	00.00	00.00	.1302	0.9661				
1.669	00.47	-212.4	1.963	00.25	-00.39	.1312	0.9695				
1.869	00.57	-210.1	1.952	00.28	-00.49	.1334	0.9685				
2.069	01.31	-168.0	1.970	-00.27	-01.28	.1319	0.9854				
0.269	08.81	-119.5	1.948	-07.68	-04.36	.1136	0.8202	16	160	045	13
0.469	14.02	-110.2	1.958	-13.18	-04.92	.1020	0.7475				
0.669	14.54	-127.5	2.419	-11.62	-08.97	.0591	0.8891				
0.869	17.88	-207.5	2.509	08.47	-15.96	.0501	0.8686				
1.069	16.47	-238.4	2.258	14.13	-08.80	.0665	0.7785				
1.269	21.87	-236.0	2.044	18.40	-12.65	.0984	0.8252				
1.469	22.02	-236.2	1.962	18.57	-12.67	.1138	0.8388				
1.669	18.75	-236.9	1.947	15.87	-10.50	.1281	0.9227				
1.869	16.83	-236.8	1.985	14.20	-09.40	.1252	0.9570				
2.069	17.16	-225.0	1.991	12.32	-12.32	.1250	0.9646				
0.269	02.23	-112.4	1.713	-02.06	-00.85	.1130	0.5690	20	160	045	13

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
0.469	11.07	-117.9	1.883	-09.81	-05.23	.1051	0.6863				
0.669	17.43	-134.0	1.966	-12.72	-12.30	.0769	0.5704				
0.869	21.62	-177.1	1.934	-01.14	-21.59	.0633	0.4471				
1.069	10.43	-180.0	2.008	00.00	-10.43	.0555	0.4394				
1.269	25.04	-211.0	1.697	13.52	-21.82	.0820	0.4030				
1.469	31.66	-232.2	1.806	25.97	-20.70	.0910	0.5282				
1.669	29.22	-226.9	1.710	22.21	-20.91	.1234	0.6182				
1.869	25.10	-233.2	1.920	20.56	-15.67	.1152	0.7964				
2.069	23.69	-225.0	2.032	17.23	-17.23	.1124	0.9246				
0.269	-00.30	-090.0	1.731	00.00	00.00	.1066	0.5513	23	160	045	13
0.469	10.80	-135.0	1.768	-07.68	-07.68	.0985	0.5392				
0.669	15.26	-180.0	1.681	00.00	-15.26	.0836	0.4012				
0.869	29.11	-190.4	1.564	05.74	-28.70	.0914	0.3682				
1.069	11.11	-180.0	1.713	00.00	-11.11	.0746	0.3757				
1.269	24.19	-191.2	1.629	04.98	-23.78	.0887	0.3936				
1.469	-03.08	-211.7	1.483	00.00	00.00	.0941	0.3371				
1.669	23.39	-209.5	1.680	12.02	-20.62	.0758	0.3628				
1.869	34.78	-225.0	1.733	26.17	-26.17	.1056	0.5481				
2.069	33.28	-215.8	1.857	21.00	-28.02	.1210	0.7588				
0.269	00.24	-090.0	2.000	-00.24	00.00	.1241	0.9710	00	165	045	13
0.469	-00.12	-360.0	1.986	00.00	00.00	.1262	0.9663				
0.669	-00.40	-030.6	1.994	00.00	00.00	.1256	0.9732				
0.869	-00.04	-030.6	1.978	00.00	00.00	.1276	0.9644				
1.069	-00.05	-239.8	1.992	00.00	00.00	.1263	0.9761				
1.269	-00.31	-315.0	1.981	00.00	00.00	.1282	0.9742				
1.469	-00.40	-210.6	1.949	00.00	00.00	.1329	0.9604				
1.669	00.47	-212.4	1.954	00.25	-00.39	.1332	0.9704				
1.869	00.75	-210.0	1.943	00.37	-00.65	.1356	0.9714				
2.069	01.44	-158.6	1.957	-00.52	-01.34	.1348	0.9869				
0.269	07.72	-117.8	1.920	-06.83	-03.61	.1168	0.8074	16	165	045	13
0.469	12.17	-067.1	1.902	-11.23	04.79	.1078	0.7247				
0.669	14.80	-077.2	2.371	-14.44	03.35	.0620	0.8671				
0.869	03.14	-135.0	2.531	-02.22	-02.22	.0503	0.9022				
1.069	08.82	-360.0	1.809	00.00	08.82	.1011	0.5888				
1.269	17.22	-265.0	2.135	17.15	-01.54	.0911	0.8807				
1.469	18.98	-244.2	2.036	17.20	-08.51	.1131	0.9359				
1.669	14.98	-237.1	1.943	12.66	-08.27	.1279	0.9160				
1.869	14.55	-236.0	1.949	12.14	-08.25	.1287	0.9302				
2.069	15.92	-223.0	1.911	11.00	-11.78	.1339	0.9125				
0.269	03.73	-072.7	1.728	-03.56	01.11	.1107	0.5703	20	165	045	13
0.469	08.99	-090.0	1.920	-08.99	00.00	.1012	0.6990				
0.669	13.75	-090.0	2.010	-13.75	00.00	.0729	0.5796				
0.869	10.64	-120.5	2.080	-09.19	-05.44	.0537	0.4756				
1.069	09.67	-059.2	1.817	-08.32	04.98	.0648	0.3822				
1.269	10.75	-225.0	1.723	07.65	-07.65	.0765	0.3911				
1.469	27.64	-227.7	1.623	21.17	-19.41	.1061	0.4666				
1.669	24.04	-225.0	1.493	17.51	-17.51	.1518	0.5515				
1.869	23.10	-232.8	1.877	18.76	-14.46	.1192	0.7711				
2.069	22.72	-225.0	1.968	16.49	-16.49	.1186	0.8838				
0.269	02.61	-116.4	1.758	-02.33	-01.16	.1060	0.5712	23	165	045	13

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	06.86	-090.0	1.834	-06.86	00.00	.0972	0.5880				
0.669	03.00	-135.0	1.813	-02.12	-02.12	.0783	0.4593				
0.869	08.34	-179.3	1.753	-00.10	-08.33	.0737	0.3941				
1.069	06.64	-045.0	1.860	-04.71	04.71	.0646	0.4069				
1.269	07.49	-151.9	1.724	-03.54	-06.61	.0759	0.3884				
1.469	21.56	-179.1	1.806	-00.35	-21.55	.0745	0.4317				
1.669	08.68	-180.0	1.675	00.00	-08.68	.0909	0.4322				
1.869	24.91	-235.5	1.606	20.94	-14.73	.1087	0.4664				
2.069	42.91	-218.0	2.192	29.78	-36.22	.0852	0.9000				
0.469	-00.05	-329.7	1.977	00.00	00.00	.1273	0.9615	00	170	045	13
0.669	-00.45	-360.0	1.993	00.00	00.00	.1257	0.9733				
1.069	00.02	-225.0	1.990	00.01	-00.01	.1265	0.9745				
1.269	-00.40	-330.0	1.977	00.00	00.00	.1286	0.9713				
1.669	00.62	-210.2	1.955	00.31	-00.53	.1330	0.9706				
1.869	00.81	-211.7	1.940	00.42	-00.68	.1358	0.9685				
0.469	10.83	-034.5	1.949	-06.18	08.95	.1100	0.7952	16	170	045	13
0.669	16.03	-045.0	2.266	-11.39	11.39	.0806	0.9556				
1.069	11.91	-346.8	2.002	02.75	11.60	.1148	0.9012				
1.269	07.19	-296.4	1.951	06.44	03.21	.1303	0.9449				
1.669	09.68	-209.2	1.832	04.75	-08.46	.1545	0.9320				
1.869	11.43	-234.2	2.029	09.31	-06.74	.1241	1.0161				
0.469	06.52	-047.1	1.971	-04.78	04.44	.0987	0.7384	20	170	045	13
0.669	12.97	-054.5	2.336	-10.62	07.61	.0632	0.8365				
1.069	13.62	-029.2	2.190	-06.74	11.94	.0756	0.7963				
1.269	04.23	-027.6	2.417	-01.96	03.75	.0661	0.9916				
1.669	06.26	-270.0	1.763	06.26	00.00	.1422	0.7726				
1.869	16.67	-225.0	1.708	11.95	-11.95	.1662	0.8306				
0.469	06.71	-038.7	1.892	-04.20	05.24	.0996	0.6591	23	170	045	13
0.669	05.74	000.0	1.944	00.00	05.74	.0765	0.5490				
1.069	16.76	-023.5	2.314	-06.84	15.43	.0528	0.6735				
1.269	07.96	-045.0	2.361	-05.65	05.65	.0569	0.7823				
1.669	07.15	-059.0	1.817	-06.13	03.69	.1043	0.6150				
1.869	10.13	-212.3	1.766	05.45	-08.58	.1095	0.5974				
0.469	-00.09	-315.0	1.981	00.00	00.00	.1272	0.9660	00	175	045	13
0.669	-00.54	-045.0	1.986	00.00	00.00	.1269	0.9710				
1.069	-00.05	-239.6	1.985	00.00	00.00	.1273	0.9733				
1.269	-00.54	-315.0	1.971	00.00	00.00	.1295	0.9687				
1.669	00.55	-210.1	1.958	00.27	-00.47	.1330	0.9754				
1.869	00.83	-200.6	1.939	00.29	-00.77	.1365	0.9717				
0.469	10.87	-360.0	1.956	00.00	10.87	.1123	0.8202	16	175	045	13
0.669	16.56	-021.8	2.018	-06.30	15.43	.1038	0.8352				
1.069	11.08	-360.0	1.990	00.00	11.08	.1245	0.9595				
1.269	04.90	-328.7	1.928	02.55	04.19	.1411	0.9873				
1.669	07.09	-180.0	1.829	00.00	-07.09	.1613	0.9686				
1.869	11.22	-192.0	1.852	02.36	-10.98	.1565	0.9740				
0.469	05.97	-360.0	1.983	00.00	05.97	.0984	0.7496	20	175	045	13
0.669	15.95	-023.5	2.434	-06.50	14.68	.0614	0.9462				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_0 = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
1.069	16.05	000.0	2.014	00.00	16.05	.1102	0.8803				
1.269	15.21	-003.9	2.309	-01.05	15.17	.0860	1.0911				
1.669	07.63	-360.0	1.868	00.00	07.63	.1450	0.9246				
1.869	05.92	-255.1	1.781	05.72	-01.52	.1641	0.9160				
0.469	07.45	-360.0	1.912	00.00	07.45	.1009	0.6885	23	175	045	13
0.669	10.72	-352.5	1.958	01.41	10.63	.0779	0.5708				
1.069	21.46	-360.0	2.374	00.00	21.46	.0540	0.7573				
1.269	18.18	-016.0	2.438	-05.17	17.51	.0582	0.9022				
1.669	15.15	000.0	1.986	00.00	15.15	.1107	0.8470				
1.869	07.23	-030.2	1.885	-03.65	06.25	.1299	0.8502				
0.269	00.10	-329.8	2.001	00.05	00.08	.1242	0.9738	00	180	045	13
0.469	00.24	-360.0	1.984	00.00	00.24	.1267	0.9672				
0.669	-00.45	-360.0	1.980	00.00	00.00	.1276	0.9677				
0.869	00.07	-021.6	1.979	-00.02	00.06	.1280	0.9691				
1.069	00.09	-239.8	1.982	00.07	-00.04	.1279	0.9729				
1.269	-00.54	-315.0	1.969	00.00	00.00	.1301	0.9698				
1.469	-00.45	-135.0	1.948	00.00	00.00	.1337	0.9650				
1.669	00.52	-205.6	1.948	00.22	-00.46	.1346	0.9718				
1.869	00.67	-203.7	1.937	00.26	-00.61	.1370	0.9720				
2.069	01.59	-160.5	1.939	-00.53	-01.49	.1377	0.9800				
0.269	01.86	-360.0	1.952	00.00	01.86	.1170	0.8492	16	180	045	13
0.469	11.64	-328.0	1.931	06.23	09.90	.1114	0.7831				
0.669	17.40	-360.0	1.867	00.00	17.40	.1135	0.7228				
0.869	19.85	000.0	2.134	00.00	19.85	.0915	0.8821				
1.069	11.85	-011.6	1.931	-02.41	11.61	.1239	0.8710				
1.269	04.85	-026.0	1.827	-02.13	04.36	.1478	0.8847				
1.469	02.20	-180.0	1.783	00.00	-02.02	.1603	0.8972				
1.669	08.40	-150.7	1.791	-04.13	-07.33	.1614	0.9144				
1.869	11.25	-180.0	1.737	00.00	-11.25	.1646	0.8595				
2.069	15.38	-180.0	1.807	00.00	-15.38	.1483	0.8613				
0.269	00.44	-045.0	1.684	-00.31	00.31	.1106	0.5328	20	180	045	13
0.469	08.36	-315.0	1.935	05.93	05.93	.1003	0.7095				
0.669	19.30	-360.0	2.242	00.00	19.30	.0662	0.7557				
0.869	27.65	-010.2	2.109	-05.30	22.27	.0749	0.6949				
1.069	16.04	-335.5	1.949	06.79	14.66	.0891	0.6446				
1.269	22.94	000.0	1.668	00.00	22.94	.1194	0.5618				
1.469	19.53	-360.0	1.474	00.00	19.53	.1554	0.5493				
1.669	06.60	-056.3	1.636	-05.49	03.67	.1465	0.6567				
1.869	03.11	-119.8	1.636	-02.70	-01.54	.1704	0.7642				
2.069	08.21	-181.6	1.727	00.23	-08.20	.1691	0.8694				
0.269	00.91	-027.9	1.750	-00.42	00.80	.1110	0.5911	23	180	045	13
0.469	07.74	-315.0	1.861	05.48	05.48	.1016	0.6412				
0.669	11.26	-360.0	1.870	00.00	11.26	.0795	0.5085				
0.869	25.05	000.0	2.219	00.00	25.05	.0509	0.5606				
1.069	18.98	-337.0	2.176	07.65	17.56	.0538	0.5544				
1.269	25.27	-360.0	2.001	00.00	25.27	.0679	0.5324				
1.469	26.43	-008.0	1.616	-03.95	26.20	.1050	0.4571				
1.669	07.19	-301.0	1.536	06.17	03.71	.1036	0.4239				
1.869	17.53	-346.8	1.736	04.12	17.09	.0855	0.4457				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	β_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
2.069	21.78	-019.5	2.663	-07.59	20.63	.0432	0.9494				
0.469	00.29	-300.3	1.991	00.25	00.14	.1261	0.9730	00	185	045	13
0.669	-00.19	-315.0	1.984	00.00	00.00	.1272	0.9706				
1.069	00.06	-250.3	1.979	00.05	-00.02	.1280	0.9695				
1.269	-00.41	-300.1	1.969	00.00	00.00	.1300	0.9693				
1.669	00.52	-205.6	1.945	00.22	-00.46	.1350	0.9695				
1.869	00.51	-205.6	1.931	00.22	-00.46	.1379	0.9697				
0.469	12.88	-298.8	1.885	11.33	06.28	.1087	0.7115	16	185	045	13
0.669	20.33	-332.2	1.734	09.80	18.14	.1095	0.5694				
1.069	11.63	-032.7	1.746	-06.34	09.82	.1144	0.6054				
1.269	08.57	-059.7	1.631	-07.41	04.34	.1521	0.6772				
1.669	13.03	-121.5	1.933	-11.16	-06.89	.1302	0.9176				
1.869	12.55	-142.7	1.891	-07.68	-10.04	.1369	0.9049				
0.469	10.48	-286.7	1.892	10.04	03.04	.1018	0.6738	20	185	045	13
0.669	20.70	-331.7	1.979	10.15	18.40	.0716	0.5424				
1.069	09.16	-315.4	1.683	06.45	06.55	.0747	0.3596				
1.269	16.46	-353.3	1.337	01.97	16.35	.1130	0.3531				
1.669	18.68	-180.0	1.509	00.00	-18.68	.1434	0.5332				
1.869	14.77	-141.6	1.516	-09.30	-11.67	.1632	0.6131				
0.469	07.98	-225.0	1.798	05.66	-05.66	.0999	0.5721	23	185	045	13
0.669	10.00	000.0	1.741	00.00	10.00	.0816	0.4283				
1.069	09.44	-315.9	1.860	06.60	06.80	.0615	0.3874				
1.269	16.85	-329.9	1.845	08.63	14.68	.0651	0.4006				
1.669	08.95	-161.7	1.733	-02.83	-08.50	.0910	0.4724				
1.869	06.79	-160.4	1.630	-02.28	-06.40	.1165	0.5177				
0.469	01.55	-296.2	1.994	00.49	00.24	.1255	0.9725	00	190	045	13
0.669	-00.31	-360.0	1.983	00.00	00.00	.1272	0.9687				
1.069	00.14	-234.9	1.980	00.11	-00.08	.1279	0.9697				
1.269	-00.54	-315.0	1.968	00.00	00.00	.1299	0.9674				
1.669	00.37	-189.2	1.947	00.05	-00.36	.1345	0.9694				
1.869	00.64	-183.9	1.934	00.04	-00.63	.1373	0.9694				
0.469	14.73	-270.0	1.879	14.73	00.00	.1038	0.6732	16	190	045	13
0.669	23.90	-314.8	1.574	17.45	17.34	.0989	0.4043				
1.069	18.83	-090.0	1.809	-18.83	00.00	.0781	0.4548				
1.269	12.05	-090.0	1.734	-12.05	00.00	.1230	0.6391				
1.669	16.00	-122.7	1.955	-13.56	-08.80	.1270	0.9263				
1.869	15.37	-138.0	1.882	-10.42	-11.54	.1379	0.8988				
0.469	12.39	-252.4	1.896	11.82	-03.80	.1024	0.6820	20	190	045	13
0.669	16.75	-303.8	1.882	14.04	09.50	.0729	0.4755				
1.069	06.55	-135.0	1.818	-04.64	-04.64	.0639	0.3777				
1.269	04.07	-121.1	1.737	-03.48	-02.10	.0832	0.4346				
1.669	28.06	-139.4	1.691	-19.13	-22.03	.1260	0.6138				
1.869	24.34	-145.4	1.673	-14.40	-20.42	.1435	0.6802				
0.469	11.30	-230.4	1.780	08.75	-07.25	.0994	0.5540	23	190	045	13
0.669	04.22	-328.9	1.744	02.18	03.61	.0797	0.4201				
1.069	07.34	-199.7	1.804	02.48	-06.91	.0682	0.3943				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	β_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
1.269	05.70	-225.0	1.884	04.03	-04.03	.0650	0.4249				
1.669	18.72	-144.6	1.680	-11.10	-15.44	.0743	0.3557				
1.869	25.08	-141.2	1.524	-16.34	-20.03	.1268	0.4821				
0.469	00.71	-292.8	2.004	00.65	00.27	.1242	0.9780	00	195	045	13
0.669	-00.09	-315.0	1.991	00.00	00.00	.1260	0.9727				
1.069	00.08	-239.8	1.992	00.06	-00.04	.1266	0.9785				
1.269	-00.41	-329.9	1.974	00.00	00.00	.1292	0.9712				
1.669	00.37	-168.4	1.956	-00.07	-00.36	.1332	0.9729				
1.869	00.46	-135.0	1.936	-00.32	-00.32	.1367	0.9687				
0.469	16.63	-237.6	1.951	14.15	-09.09	.0980	0.7109	16	195	045	13
0.669	20.35	-269.0	1.786	20.34	-00.37	.0713	0.4020				
1.069	27.69	-124.5	1.822	-23.38	-16.55	.0883	0.5246				
1.269	21.20	-116.1	1.939	-19.20	-09.68	.1022	0.7277				
1.669	18.46	-125.8	1.993	-15.14	-11.04	.1207	0.9341				
1.869	17.94	-135.2	1.905	-12.85	-12.93	.1337	0.9030				
0.469	13.23	-234.3	1.888	10.80	-07.81	.1068	0.7023	20	195	045	13
0.669	14.60	-249.6	1.893	13.72	-05.18	.0759	0.5031				
1.069	23.59	-155.3	1.886	-10.34	-21.63	.0625	0.4100				
1.269	19.56	-145.9	1.710	-11.26	-16.39	.0823	0.4122				
1.669	29.06	-134.1	1.889	-21.75	-21.14	.1155	0.7611				
1.869	25.81	-139.8	1.894	-17.33	-20.27	.1223	0.8117				
0.469	13.20	-209.6	1.784	06.60	-11.52	.1005	0.5636	23	195	045	13
0.669	08.48	-205.1	1.834	03.61	-07.68	.0789	0.4772				
1.069	23.38	-171.5	1.709	-03.65	-23.15	.0757	0.3787				
1.269	15.09	-135.0	1.706	-10.79	-10.79	.0750	0.3737				
1.669	35.28	-148.9	1.760	-20.07	-31.20	.0927	0.5013				
1.869	32.46	-141.6	1.728	-21.55	-26.49	.1175	0.6048				
0.469	00.73	-299.3	2.006	00.63	00.35	.1238	0.9777	00	200	045	13
1.069	00.43	-239.9	1.987	00.37	-00.21	.1267	0.9719				
1.669	00.17	-135.0	1.956	-00.12	-00.12	.1327	0.9695				
0.469	17.14	-220.1	1.986	11.23	-13.27	.1022	0.7822	16	200	045	13
1.069	28.79	-143.4	1.875	-18.14	-28.80	.1011	0.6519				
1.669	20.27	-127.1	2.006	-16.41	-12.55	.1175	0.9277				
0.469	13.09	-217.2	1.897	08.00	-10.49	.1104	0.7364	20	200	045	13
1.069	33.10	-156.2	1.922	-14.73	-30.81	.0749	0.5195				
1.669	30.48	-135.0	1.975	-22.59	-22.59	.1095	0.8238				
0.469	11.51	-183.8	1.778	00.77	-11.48	.1010	0.5608	23	200	045	13
1.069	32.80	-159.4	1.818	-12.77	-31.10	.0817	0.4827				
0.469	01.06	-288.0	2.014	01.00	00.32	.1227	0.9808	00	205	045	13
1.069	00.29	-239.7	1.989	00.25	-00.14	.1262	0.9709				
1.669	-00.11	-207.0	1.963	00.00	00.00	.1311	0.9688				
0.469	15.18	-208.1	2.026	07.28	-13.45	.1106	0.9011	16	205	045	13
1.069	27.48	-140.1	1.966	-18.45	-21.75	.0915	0.6787				
1.669	21.33	-127.6	2.010	-17.19	-13.40	.1150	0.9138				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	10.48	-205.5	1.860	04.55	-09.47	.1094	0.6894	20	205	045	13
1.069	36.35	-155.0	1.938	-17.27	-33.70	.0881	0.6259				
1.669	30.76	-129.9	2.142	-24.54	-20.89	.0908	0.8862				
0.469	11.70	-151.8	1.801	-05.58	-10.34	.1007	0.5795	23	205	045	13
1.069	32.20	-151.0	1.897	-16.97	-28.84	.0857	0.5717				
1.669	37.80	-144.3	1.914	-24.35	-32.20	.0956	0.6552				
0.469	01.07	-287.9	2.007	01.01	00.32	.1231	0.9732	00	210	045	13
0.669	00.35	-311.5	2.005	00.26	00.23	.1237	0.9751				
1.069	00.55	-244.5	1.991	00.49	-00.23	.1257	0.9702				
1.269	00.15	-305.1	1.995	00.12	00.08	.1252	0.9718				
1.669	-00.10	-270.0	1.974	00.00	00.00	.1289	0.9688				
1.869	-00.28	-135.0	1.955	00.00	00.00	.1320	0.9631				
0.469	13.95	-199.3	2.003	04.69	-13.19	.1165	0.9155	16	210	045	13
0.669	21.62	-179.5	2.029	-00.19	-21.61	.1028	0.8418				
1.069	27.50	-132.8	2.010	-20.90	-19.47	.0909	0.7220				
1.269	25.57	-133.3	1.919	-19.19	-18.16	.1092	0.7537				
1.669	22.03	-126.4	2.034	-18.03	-13.50	.1107	0.9136				
1.869	22.46	-180.0	1.904	00.00	-22.46	.1290	0.8696				
0.469	08.78	-168.5	1.767	-01.76	-08.60	.1082	0.5909	20	210	045	13
0.669	21.73	-135.0	1.843	-15.73	-15.73	.1028	0.6303				
1.069	33.54	-149.1	1.912	-18.90	-29.63	.0936	0.6388				
1.269	34.61	-143.4	1.961	-22.36	-28.98	.0931	0.6852				
1.669	29.35	-129.8	1.961	-23.36	-19.79	.0979	0.7211				
1.869	30.69	-180.0	2.051	00.00	-30.69	.1033	0.8754				
0.469	13.88	-143.7	1.871	-08.32	-11.26	.1019	0.6533	23	210	045	13
0.669	19.27	-150.9	2.023	-09.64	-16.98	.0856	0.6942				
1.069	30.23	-144.6	2.018	-18.65	-25.40	.0840	0.6758				
1.269	33.35	-146.7	1.959	-19.86	-28.81	.0890	0.6533				
1.669	36.48	-138.0	2.013	-26.32	-23.78	.0946	0.7559				
1.869	38.56	-144.6	1.934	-24.78	-33.01	.1045	0.7381				
0.469	01.23	-284.5	2.018	01.19	00.30	.1215	0.9775	00	215	045	13
1.069	00.72	-247.4	2.000	00.66	-00.27	.1248	0.9763				
1.669	00.03	-225.0	1.993	00.02	-00.02	.1250	0.9680				
0.469	13.28	-193.1	1.841	03.06	-12.94	.1206	0.7375	16	215	045	13
1.069	25.62	-130.5	2.069	-20.03	-17.29	.0934	0.8142				
1.669	23.20	-123.7	2.041	-19.62	-13.37	.1070	0.8922				
0.469	10.41	-143.1	1.741	-06.29	-08.35	.1075	0.5646	20	215	045	13
1.069	30.87	-143.7	2.025	-19.48	-25.72	.0913	0.7433				
1.669	31.16	-128.1	2.105	-25.44	-20.46	.0817	0.7534				
0.469	16.85	-140.2	2.026	-10.97	-13.09	.0971	0.7914	23	215	045	13
1.069	30.91	-135.3	2.072	-22.83	-22.05	.0847	0.7415				
1.669	34.83	-130.8	2.060	-27.77	-24.44	.0907	0.7793				
0.469	01.56	-279.7	2.028	01.53	00.26	.1204	0.9840	00	220	045	13
1.069	00.89	-250.1	2.009	00.83	-00.30	.1236	0.9800				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_0 = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	β	RUN
1.669	00.15	-305.1	2.014	00.12	00.08	.1220	0.9751				
0.469	11.25	-160.1	1.770	-03.87	-10.59	.1088	0.5972	16	220	045	13
1.069	24.01	-127.9	2.104	-19.36	-15.30	.0942	0.8674				
1.669	23.79	-122.4	2.065	-20.41	-13.29	.1061	0.9186				
0.469	15.38	-135.0	1.752	-11.00	-11.00	.1091	0.5828	20	220	045	13
1.069	30.34	-135.5	2.038	-22.30	-22.65	.0902	0.7486				
1.669	30.44	-123.9	2.116	-26.00	-18.14	.0874	0.8193				
0.469	18.21	-135.0	2.103	-13.09	-13.09	.0932	0.8560	23	220	045	13
1.069	28.49	-129.2	1.988	-22.81	-18.93	.0966	0.7420				
1.669	33.21	-123.3	2.095	-28.68	-19.76	.0874	0.7936				
0.469	01.59	-225.0	2.021	01.12	-01.12	.1208	0.9764	00	225	045	13
1.069	01.20	-245.3	2.011	01.09	-00.50	.1225	0.9753				
1.669	00.58	-360.0	2.030	00.00	00.58	.1190	0.9750				
0.469	13.13	-135.0	1.750	-09.36	-09.36	.1081	0.5752	16	225	045	13
1.069	22.33	-125.7	2.109	-18.44	-13.47	.0939	0.8704				
1.669	23.91	-120.7	2.038	-20.86	-12.75	.1107	0.9187				
0.469	19.54	-138.2	1.887	-13.30	-14.81	.1076	0.7065	20	225	045	13
1.069	27.70	-125.4	2.001	-23.16	-16.91	.0930	0.7289				
1.669	30.44	-121.1	2.107	-26.71	-16.89	.0925	0.8551				
0.469	19.00	-128.7	2.075	-15.04	-12.14	.0906	0.7967	23	225	045	13
1.069	27.75	-120.2	2.116	-24.45	-14.82	.0841	0.7882				
1.669	32.45	-117.9	2.172	-29.33	-16.56	.0870	0.8912				
0.469	00.20	-196.2	1.923	00.05	-00.19	.1393	0.9676	00	240	045	13
1.069	01.18	-238.9	2.015	01.01	-00.61	.1214	0.9723				
1.669	02.11	-360.0	2.125	00.00	02.11	.1063	1.0112				
0.469	16.18	-113.3	1.966	-14.92	-06.54	.1009	0.7492	16	240	045	13
1.069	22.17	-111.0	2.048	-20.82	-08.30	.1008	0.8498				
1.669	23.25	-114.6	1.974	-21.33	-10.14	.1175	0.8832				
0.469	17.10	-116.4	2.059	-15.40	-07.78	.0860	0.7372	20	240	045	13
1.069	25.13	-101.3	2.211	-24.70	-05.25	.0869	0.9456				
1.669	29.51	-107.0	2.114	-28.42	-09.39	.1051	0.9820				
0.469	21.56	-107.1	2.247	-20.78	-06.66	.0648	0.7456	23	240	045	13
1.069	26.56	-091.3	2.258	-26.55	-00.65	.0783	0.9176				
1.669	34.47	-101.8	2.183	-33.90	-07.99	.0952	0.9916				
0.269	00.16	-326.0	1.996	00.08	00.13	.1242	0.9664	00	000	-135	14
0.869	00.18	-360.0	1.996	00.00	00.18	.1261	0.9805				
1.469	-00.61	-135.0	1.944	00.00	00.00	.1344	0.9641				
2.069	01.27	-156.7	1.943	-00.50	-01.16	.1378	0.9869				
0.269	06.76	-346.9	1.821	01.53	06.58	.1639	0.9724	16	000	-135	14
0.869	10.42	-360.0	1.813	00.00	10.42	.1624	0.9518				
1.469	12.99	-360.0	1.833	00.00	12.99	.1553	0.9387				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_\infty = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	ϕ	RUN
2.069	14.37	-360.0	1.927	00.00	14.37	.1417	0.9903				
0.269	07.74	-346.0	1.754	01.88	07.51	.1836	0.9835	20	000	-135	14
0.869	13.79	-359.6	1.796	00.09	13.78	.1708	0.9752				
1.469	13.56	-360.0	1.734	00.00	13.56	.1793	0.9318				
2.069	16.48	-360.0	1.901	00.00	16.48	.1506	1.0111				
0.269	08.34	-344.2	1.684	02.28	08.02	.2038	0.9820	23	000	-135	14
0.869	14.33	-359.7	1.731	00.07	14.32	.1889	0.9771				
1.469	14.84	-360.0	1.685	00.00	14.84	.1948	0.9401				
2.069	17.98	-360.0	1.837	00.00	17.98	.1653	1.0051				
0.269	09.67	-360.0	1.829	00.00	09.67	.1611	0.9675	16	015	-135	14
0.869	12.69	-330.0	1.838	06.42	11.03	.1576	0.9595				
1.469	15.31	-330.2	1.878	07.74	13.36	.1481	0.9594				
2.069	14.82	-334.3	1.927	06.54	13.41	.1406	0.9822				
0.269	11.30	-313.8	1.760	08.20	07.87	.1802	0.9742	20	015	-135	14
0.869	15.17	-329.2	1.789	07.90	13.11	.1704	0.9626				
1.469	17.29	-329.1	1.833	09.08	14.95	.1614	0.9753				
2.069	17.21	-333.4	1.897	07.89	15.48	.1503	1.0029				
0.269	12.33	-311.6	1.706	09.28	08.25	.1965	0.9789	23	015	-135	14
0.869	16.01	-328.0	1.711	08.64	13.67	.1907	0.9573				
1.469	18.61	-328.5	1.767	09.97	16.01	.1781	0.9732				
2.069	18.62	-332.6	1.835	08.81	16.65	.1639	0.9933				
0.269	01.68	-300.2	2.024	01.45	00.84	.1196	0.9711	00	030	-135	14
0.669	00.73	-299.5	2.034	00.63	00.35	.1192	0.9838				
0.869	01.43	-315.0	2.020	01.01	01.01	.1215	0.9809				
1.269	00.47	-315.0	2.004	00.33	00.33	.1220	0.9605				
1.469	00.64	-329.8	1.975	00.32	00.55	.1274	0.9588				
1.869	-00.40	-059.4	1.929	00.00	00.00	.1368	0.9586				
2.069	00.47	-090.0	1.934	-00.47	00.00	.1370	0.9674				
0.269	12.27	-298.3	1.828	10.84	05.88	.1622	0.9725	16	030	-135	14
0.669	11.88	-312.4	1.826	08.83	08.07	.1616	0.9659				
0.869	14.14	-360.0	1.839	00.00	14.14	.1542	0.9401				
1.269	13.79	-315.0	1.908	09.84	09.84	.1437	0.9750				
1.469	15.98	-312.8	1.891	11.86	11.01	.1429	0.9444				
1.869	15.60	-322.0	1.930	09.75	12.40	.1392	0.9766				
2.069	14.93	-322.1	1.930	09.30	11.88	.1405	0.9863				
0.269	16.20	-296.8	1.847	14.53	07.46	.1599	0.9872	20	030	-135	14
0.669	16.30	-310.2	1.802	12.59	10.68	.1657	0.9554				
0.869	16.62	-310.5	1.796	12.78	10.97	.1667	0.9521				
1.269	16.79	-315.0	1.896	12.04	12.04	.1485	0.9892				
1.469	18.70	-360.0	1.863	00.00	18.70	.1552	0.9819				
1.869	17.56	-320.0	1.904	11.49	13.62	.1503	1.0131				
2.069	17.60	-319.3	1.867	11.68	13.52	.1548	0.9854				
0.269	17.78	-296.3	1.784	16.03	08.08	.1752	0.9822	23	030	-135	14
0.669	17.92	-310.1	1.724	13.89	11.76	.1843	0.9436				
0.869	18.94	-310.0	1.733	14.72	12.43	.1821	0.9450				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	ϕ	RUN
1.269	17.83	-315.0	1.826	12.81	12.81	.1653	0.9886				
1.469	20.11	-360.0	1.774	00.00	20.11	.1750	0.9663				
1.869	19.08	-318.8	1.815	12.83	14.58	.1678	0.9870				
2.069	19.02	-316.9	1.796	13.25	14.12	.1698	0.9696				
0.269	16.82	-288.5	1.931	15.99	05.47	.1408	0.9896	16	045	-135	14
0.669	15.06	-298.2	1.853	13.34	07.24	.1516	0.9446				
0.869	14.88	-299.6	1.840	13.00	07.47	.1559	0.9523				
1.269	12.73	-301.7	1.833	10.88	06.77	.1630	0.9852				
1.469	13.23	-299.8	1.792	11.53	06.66	.1712	0.9721				
1.869	17.01	-305.0	1.973	14.06	09.95	.1309	0.9821				
2.069	16.28	-303.1	1.991	13.74	09.06	.1290	0.9957				
0.269	21.79	-283.8	1.937	21.21	05.44	.1381	0.9802	20	045	-135	14
0.669	19.61	-295.4	1.857	17.84	08.68	.1507	0.9446				
0.869	19.57	-298.8	1.857	17.30	09.71	.1542	0.9668				
1.269	18.12	-300.9	1.877	15.68	09.53	.1520	0.9829				
1.469	20.18	-300.4	1.876	17.58	10.53	.1504	0.9708				
1.869	19.36	-303.2	1.900	16.38	10.89	.1454	0.9743				
2.069	18.76	-301.9	1.920	16.08	10.17	.1424	0.9839				
0.269	23.49	-281.7	1.883	23.05	05.03	.1500	0.9787	23	045	-135	14
0.669	21.29	-295.1	1.804	19.43	09.38	.1640	0.9481				
0.869	21.44	-297.1	1.781	19.26	10.14	.1694	0.9456				
1.269	20.27	-299.6	1.823	17.80	10.33	.1625	0.9675				
1.469	22.05	-299.1	1.819	19.48	11.14	.1640	0.9699				
1.869	21.14	-302.0	1.831	18.15	11.58	.1606	0.9674				
2.069	20.64	-301.0	1.858	17.89	10.97	.1554	0.9762				
0.269	00.46	-237.0	1.953	00.38	-00.25	.1356	0.9865	00	060	-135	14
0.469	00.25	-150.3	1.909	-00.12	-00.21	.1382	0.9392				
0.669	-00.13	-090.0	1.948	00.00	00.00	.1311	0.9465				
0.869	00.89	-340.1	1.947	00.30	00.83	.1310	0.9438				
1.069	01.97	-265.9	2.039	01.96	-00.14	.1196	0.9943				
1.269	02.00	-297.2	2.034	01.77	00.91	.1192	0.9837				
1.469	01.86	-225.0	2.007	01.31	-01.31	.1160	0.9178				
1.669	02.13	-360.0	2.124	00.00	02.13	.1055	1.0020				
1.869	02.90	-315.0	2.096	02.05	02.05	.1091	0.9913				
2.069	01.54	-329.0	2.072	00.79	01.32	.1128	0.9879				
0.269	20.61	-274.5	2.024	20.55	01.69	.1227	0.9969	16	060	-135	14
0.469	18.85	-278.3	1.966	18.66	02.82	.1306	0.9689				
0.669	17.03	-286.8	1.931	16.34	05.05	.1381	0.9708				
0.869	16.50	-293.5	1.895	15.19	06.73	.1465	0.9744				
1.069	15.80	-283.5	1.867	15.38	03.78	.1508	0.9603				
1.269	15.01	-287.7	1.893	14.32	04.66	.1474	0.9769				
1.469	15.13	-287.2	1.867	14.48	04.57	.1529	0.9733				
1.669	13.79	-280.9	1.858	13.55	02.65	.1559	0.9793				
1.869	14.02	-289.4	1.840	13.25	04.74	.1608	0.9820				
2.069	12.91	-277.6	1.812	12.80	01.73	.1676	0.9813				
0.269	26.04	-225.0	2.030	19.05	-19.05	.1181	0.9685	20	060	-135	14
0.469	22.42	-276.7	1.953	22.28	02.75	.1341	0.9754				
0.669	20.12	-283.2	1.865	19.62	04.78	.1505	0.9552				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.869	19.45	-287.7	1.816	18.59	06.12	.1626	0.9573				
1.069	18.79	-275.1	1.820	18.72	01.73	.1628	0.9644				
1.269	17.50	-280.2	1.863	17.24	03.19	.1570	0.9934				
1.469	17.39	-273.6	1.880	17.35	01.12	.1559	1.0127				
1.669	20.01	-281.1	1.966	19.66	04.01	.1366	1.0135				
1.869	21.36	-290.5	1.955	20.11	07.79	.1357	0.9903				
2.069	20.96	-287.7	1.960	20.04	06.64	.1339	0.9852				
0.269	28.47	-225.0	1.967	20.97	-20.97	.1281	0.9522	23	060	-135	14
0.469	25.36	-225.0	1.831	18.52	-18.52	.1467	0.8842				
0.669	24.49	-274.7	1.829	24.41	02.13	.1521	0.9135				
0.869	24.40	-280.0	1.818	24.07	04.50	.1576	0.9312				
1.069	23.43	-272.3	1.784	23.41	00.99	.1632	0.9145				
1.269	22.83	-277.7	1.877	22.64	03.22	.1491	0.9645				
1.469	23.73	-280.9	1.892	23.34	04.75	.1496	0.9903				
1.669	22.56	-282.3	1.919	22.09	05.05	.1446	0.9978				
1.869	23.63	-290.5	1.919	22.28	08.71	.1438	0.9925				
2.069	23.16	-284.0	1.910	22.54	05.90	.1441	0.9803				
0.269	22.64	-225.0	2.063	16.43	-16.43	.1124	0.9696	16	070	-135	14
0.869	18.46	-278.5	1.925	18.27	02.82	.1370	0.9540				
1.469	16.48	-273.1	1.944	16.45	00.91	.1372	0.9844				
2.069	14.60	-225.0	1.863	10.43	-10.43	.1535	0.9711				
0.269	27.01	-225.0	2.047	19.82	-19.82	.1146	0.9644	20	070	-135	14
0.869	21.17	-271.7	1.849	21.16	00.65	.1515	0.9387				
1.469	18.93	-225.0	1.874	13.63	-13.63	.1528	0.9835				
2.069	17.74	-270.0	1.832	17.74	00.00	.1635	0.9868				
0.269	32.28	-270.0	2.072	32.28	00.00	.1082	0.9472	23	070	-135	14
0.869	24.05	-225.0	1.883	17.51	-17.51	.1487	0.9708				
1.469	21.15	-270.0	1.856	21.15	00.00	.1582	0.9904				
2.069	24.12	-225.0	1.901	17.56	-17.56	.1417	0.9508				
0.269	23.80	-225.0	2.093	17.32	-17.32	.1067	0.9647	16	075	-135	14
0.469	21.35	-225.0	2.008	15.45	-15.45	.1171	0.9273				
0.669	19.47	-271.0	1.950	19.46	00.35	.1288	0.9329				
0.869	18.87	-225.0	1.942	13.58	-13.58	.1317	0.9414				
1.069	18.52	-270.0	1.941	18.52	00.00	.1324	0.9457				
1.269	17.27	-225.0	1.992	12.39	-12.39	.1270	0.9814				
1.469	16.80	-225.0	1.972	12.05	-12.05	.1312	0.9829				
1.669	16.40	-270.0	1.967	16.40	00.00	.1334	0.9915				
1.869	16.77	-271.8	1.966	16.76	00.54	.1346	0.9990				
2.069	15.37	-270.0	1.895	15.37	00.00	.1455	0.9674				
0.269	28.63	-225.0	2.046	21.10	-21.10	.1113	0.9353	20	075	-135	14
0.469	25.21	-225.0	1.936	18.41	-18.41	.1271	0.9005				
0.669	22.98	-225.0	1.878	16.69	-16.69	.1418	0.9184				
0.869	22.23	-225.0	1.878	16.11	-16.11	.1440	0.9320				
1.069	21.75	-264.8	1.850	21.66	-02.07	.1494	0.9263				
1.269	20.61	-270.0	1.917	20.61	00.00	.1413	0.9722				
1.469	19.74	-270.0	1.896	19.74	00.00	.1469	0.9781				
1.669	19.58	-269.5	1.899	19.57	-00.17	.1482	0.9910				
1.869	19.88	-225.0	1.909	14.34	-14.34	.1476	1.0030				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
2.069	18.91	-269.2	1.866	18.90	-00.27	.1549	0.9844				
0.269	33.93	-270.0	2.121	33.93	00.00	.0994	0.9396	23	075	-135	14
0.469	29.51	-270.0	1.876	29.51	00.00	.1279	0.8256				
0.669	25.42	-225.0	1.855	18.57	-18.57	.1474	0.9216				
0.869	25.16	-270.0	1.822	25.16	00.00	.1549	0.9203				
1.069	24.47	-259.9	1.777	24.13	-04.56	.1636	0.9072				
1.269	23.79	-270.0	1.873	23.79	00.00	.1502	0.9656				
1.469	22.09	-270.0	1.848	22.09	00.00	.1570	0.9704				
1.669	22.52	-264.1	1.854	22.41	-02.44	.1579	0.9856				
1.869	22.57	-225.0	1.877	16.37	-16.37	.1554	1.0045				
2.069	21.87	-264.9	1.815	21.79	-02.04	.1656	0.9738				
0.269	25.10	-270.0	2.128	25.10	00.00	.1005	0.9598	16	080	-135	14
0.869	19.80	-225.0	1.969	14.28	-14.28	.1256	0.9370				
1.469	17.64	-270.0	2.003	17.64	00.00	.1248	0.9808				
2.069	16.52	-270.0	1.967	16.52	00.00	.1327	0.9862				
0.269	30.08	-225.0	2.152	22.27	-22.27	.0982	0.9737	20	080	-135	14
0.869	23.47	-270.0	1.897	23.47	00.00	.1379	0.9198				
1.469	20.72	-268.5	1.928	20.71	-00.56	.1395	0.9763				
2.069	20.24	-261.9	1.894	20.05	-02.97	.1472	0.9767				
0.269	35.63	-270.0	2.257	35.63	00.00	.0852	0.9954	23	080	-135	14
0.869	26.11	-269.4	1.854	26.10	-00.29	.1474	0.9197				
1.469	23.19	-262.7	1.875	23.02	-03.11	.1504	0.9691				
2.069	22.91	-258.2	1.846	22.47	-04.93	.1575	0.9709				
0.269	26.34	-270.0	2.161	26.34	00.00	.0952	0.9571	16	085	-135	14
0.869	20.73	-270.0	1.992	20.73	00.00	.1206	0.9317				
1.469	18.53	-270.0	2.029	18.53	00.00	.1189	0.9731				
2.069	17.96	-262.6	2.011	17.81	-02.39	.1244	0.9901				
0.269	31.35	-270.0	2.235	31.35	00.00	.0884	0.9982	20	085	-135	14
0.869	24.47	-270.0	1.928	24.47	00.00	.1307	0.9153				
1.469	21.99	-262.1	1.960	21.80	-03.17	.1326	0.9749				
2.069	21.33	-256.6	1.930	20.79	-05.17	.1390	0.9752				
0.269	36.36	-268.4	2.256	36.34	-01.17	.0811	0.9467	23	085	-135	14
0.869	27.45	-264.0	1.882	27.32	-03.10	.1408	0.9176				
1.469	24.32	-257.1	1.902	23.77	-05.76	.1441	0.9691				
2.069	24.24	-253.9	1.882	23.39	-07.11	.1487	0.9689				
0.269	00.54	-264.8	1.971	00.53	-00.04	.1296	0.9695	00	090	-135	14
0.469	00.67	-268.3	1.941	00.66	-00.02	.1341	0.9572				
0.669	-00.10	-315.0	1.917	00.00	00.00	.1385	0.9529				
0.869	00.33	-360.0	1.943	00.00	00.33	.1335	0.9564				
1.069	00.06	-248.4	1.983	00.05	-00.02	.1298	0.9892				
1.269	-00.25	-060.2	1.935	00.00	00.00	.1335	0.9440				
1.469	00.21	-104.1	1.908	-00.20	-00.05	.1385	0.9399				
1.669	00.14	-144.9	1.914	-00.08	-00.11	.1391	0.9530				
1.869	00.43	-135.0	1.895	-00.30	-00.30	.1437	0.9553				
2.069	01.85	-180.0	1.904	00.00	-01.85	.1448	0.9758				
0.269	27.16	-270.0	2.168	27.16	00.00	.0916	0.9312	16	090	-135	14

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	24.40	-268.8	2.092	24.39	-00.54	.1015	0.9171				
0.669	22.54	-270.0	2.029	22.54	00.00	.1129	0.9245				
0.869	21.56	-269.2	2.007	21.55	-00.31	.1163	0.9197				
1.069	21.18	-252.0	2.069	20.22	-06.82	.1143	0.9957				
1.269	21.28	-262.3	2.090	21.10	-02.98	.1091	0.9821				
1.469	19.63	-264.4	2.051	19.54	-01.99	.1137	0.9632				
1.669	20.35	-255.1	2.072	19.71	-05.44	.1131	0.9901				
1.869	19.44	-270.0	2.096	19.44	00.00	.1112	1.0099				
2.069	18.97	-258.3	2.033	18.60	-03.98	.1185	0.9759				
0.269	32.39	-270.0	2.221	32.39	00.00	.0863	0.9537	20	090	-135	14
0.469	29.26	-269.0	2.049	29.25	-00.56	.1057	0.8928				
0.669	26.95	-268.0	1.973	26.93	-01.01	.1205	0.9042				
0.869	25.79	-264.8	1.943	25.69	-02.50	.1258	0.9008				
1.069	24.88	-249.7	2.012	23.50	-09.14	.1254	0.9994				
1.269	25.53	-257.5	2.028	24.99	-05.90	.1198	0.9786				
1.469	23.26	-257.2	2.361	22.74	-05.44	.0915	1.2593				
1.669	23.95	-251.0	1.998	22.78	-08.22	.1263	0.9855				
1.869	23.61	-266.2	2.042	23.56	-01.65	.1218	1.0174				
2.069	22.44	-252.9	1.945	21.54	-06.92	.1330	0.9557				
0.269	36.98	-266.4	2.272	36.92	-02.70	.0760	0.9097	23	090	-135	14
0.469	32.85	-265.7	2.052	32.77	-02.77	.1081	0.9171				
0.669	30.09	-263.3	1.990	29.91	-03.86	.1222	0.9412				
0.869	28.51	-260.0	1.886	28.14	-05.38	.1369	0.8972				
1.069	27.45	-246.9	1.984	25.53	-11.51	.1329	1.0138				
1.269	28.28	-253.9	1.994	27.33	-08.48	.1279	0.9909				
1.469	25.56	-253.2	1.941	24.60	-07.87	.1362	0.9718				
1.669	26.54	-248.6	1.967	24.93	-10.32	.1346	1.0008				
1.869	26.61	-261.3	2.038	26.34	-04.33	.1264	1.0496				
2.069	25.25	-250.6	1.914	23.98	-08.90	.1406	0.9629				
0.269	28.41	-270.0	2.208	28.41	00.00	.0858	0.9287	16	095	-135	14
0.869	23.60	-262.0	2.051	23.39	-03.47	.1091	0.9237				
1.469	21.20	-255.9	2.103	20.61	-05.39	.1058	0.9713				
0.269	32.52	-267.4	2.129	32.49	-01.65	.0906	0.8659	20	095	-135	14
0.869	27.31	-258.9	2.004	26.87	-05.67	.1163	0.9161				
1.469	24.50	-252.0	2.050	23.43	-08.01	.1161	0.9819				
2.069	23.68	-248.8	2.021	22.23	-09.01	.1205	0.9734				
0.269	32.21	-250.2	2.046	30.65	-12.04	.1018	0.8558	23	095	-135	14
0.869	29.99	-255.4	2.004	29.18	-08.27	.1198	0.9436				
2.069	26.22	-246.9	1.974	24.37	-10.93	.1295	0.9730				
0.269	29.16	-268.9	2.240	29.15	-00.61	.0810	0.9215	16	100	-135	14
0.669	25.76	-259.7	2.102	25.39	-04.93	.1005	0.9219				
0.869	24.66	-257.0	2.071	24.10	-05.89	.1042	0.9100				
1.269	23.65	-251.9	2.149	22.60	-07.74	.0978	0.9658				
1.469	22.08	-251.6	2.143	21.05	-07.29	.0989	0.9673				
1.869	22.10	-261.5	2.198	21.88	-03.43	.0956	1.0198				
2.069	21.04	-249.8	2.125	19.85	-07.56	.1021	0.9712				
0.269	29.92	-263.0	2.261	29.73	-04.01	.0844	0.9926	20	100	-135	14

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	β	RUN
0.669	29.48	-258.7	2.081	29.00	-06.32	.1044	0.9268				
0.869	28.15	-254.9	2.026	27.32	-07.93	.1112	0.9060				
1.269	27.15	-249.9	2.117	25.71	-09.99	.1050	0.9865				
1.469	25.48	-249.1	2.094	23.99	-09.64	.1086	0.9842				
1.869	25.96	-256.0	2.165	25.28	-06.71	.1030	1.0422				
2.069	24.60	-246.3	2.059	22.74	-10.42	.1125	0.9650				
0.269	30.76	-246.7	2.194	28.66	-13.24	.0985	1.0436	23	100	-135	14
0.669	32.90	-256.2	2.078	32.13	-06.77	.1071	0.9461				
0.869	31.16	-252.0	2.091	29.90	-10.58	.1076	0.9705				
1.269	29.95	-247.2	2.096	27.97	-12.58	.1104	1.0031				
1.469	27.95	-246.7	2.059	25.98	-11.85	.1159	0.9941				
1.869	28.61	-253.3	2.114	27.58	-08.90	.1116	1.0433				
2.069	27.19	-244.5	2.012	24.87	-12.47	.1211	0.9651				
0.269	28.49	-263.3	2.142	28.32	-03.62	.0851	0.8307	16	105	-135	14
0.469	27.29	-257.2	2.200	26.70	-06.52	.0854	0.9128				
0.669	26.45	-255.1	2.128	25.67	-07.29	.0956	0.9130				
0.869	25.52	-252.8	2.106	24.51	-08.03	.0978	0.9026				
1.069	25.39	-243.0	2.127	22.92	-12.16	.0970	0.9258				
1.269	24.54	-249.2	2.184	23.11	-09.20	.0915	0.9544				
1.469	22.83	-248.6	2.191	21.40	-08.73	.0912	0.9615				
1.669	23.51	-245.4	2.185	21.58	-10.26	.0926	0.9681				
1.869	22.82	-257.8	2.249	22.35	-05.08	.0880	1.0170				
2.069	22.07	-247.4	2.170	20.52	-08.85	.0945	0.9637				
0.269	34.19	-252.7	2.116	32.96	-11.42	.0906	0.8489	20	105	-135	14
0.469	30.66	-256.9	2.249	30.00	-07.65	.0831	0.9597				
0.669	30.29	-254.4	2.184	29.36	-08.92	.0936	0.9761				
0.869	28.72	-251.3	2.039	27.42	-09.96	.1069	0.8894				
1.069	28.64	-242.3	2.075	25.80	-14.24	.1061	0.9331				
1.269	28.01	-247.1	2.155	26.10	-11.69	.0984	0.9807				
1.469	26.34	-246.6	2.149	24.43	-11.12	.1000	0.9873				
1.669	27.03	-243.3	2.139	24.50	-12.91	.1016	0.9875				
1.869	26.68	-252.5	2.218	25.60	-08.59	.0947	1.0404				
2.069	25.60	-244.0	2.103	23.29	-11.86	.1038	0.9537				
0.269	32.79	-244.1	2.123	30.09	-15.71	.1072	1.0158	23	105	-135	14
0.469	31.38	-243.7	2.171	28.66	-15.12	.1011	1.0332				
0.669	32.15	-251.4	2.015	30.78	-11.33	.1090	0.8728				
0.869	31.68	-249.7	2.119	30.06	-12.08	.1018	0.9594				
1.069	31.10	-241.1	2.149	27.83	-16.25	.1027	1.0140				
1.269	30.36	-245.7	2.164	28.09	-13.55	.1009	1.0195				
1.469	28.60	-244.9	2.088	26.27	-13.02	.1095	0.9823				
1.669	29.55	-242.0	2.109	26.59	-14.90	.1091	1.0121				
1.869	29.15	-250.2	2.172	27.68	-10.69	.1026	1.0502				
2.069	28.02	-242.5	2.054	25.26	-13.80	.1125	0.9578				
0.269	25.19	-245.5	2.179	23.17	-11.03	.0912	0.9447	16	110	-135	14
0.669	26.34	-249.6	2.153	24.89	-09.79	.0910	0.9046				
0.869	26.08	-249.0	2.120	24.55	-09.94	.0934	0.8812				
1.269	24.71	-245.7	2.155	22.75	-10.72	.0899	0.8959				
1.469	23.81	-246.0	2.213	21.95	-10.17	.0853	0.9309				
1.869	23.32	-253.9	2.247	22.49	-06.81	.0840	0.9674				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
2.069	23.30	-245.4	2.200	21.38	-10.16	.0877	0.9371				
0.269	29.83	-246.4	2.200	27.71	-12.92	.0917	0.9799	20	110	-135	14
0.669	30.44	-251.5	2.209	29.12	-10.56	.0883	0.9571				
0.869	29.33	-248.2	2.091	27.55	-11.78	.0996	0.8977				
1.269	28.83	-244.9	2.159	26.49	-13.14	.0939	0.9422				
1.469	27.23	-244.3	2.193	24.87	-12.57	.0923	0.9759				
1.869	27.28	-250.5	2.266	25.92	-09.76	.0868	1.0288				
2.069	26.91	-242.3	2.153	24.19	-13.27	.0949	0.9429				
0.269	34.16	-245.4	2.203	31.67	-15.77	.0960	1.0310	23	110	-135	14
0.669	31.29	-242.2	2.138	28.26	-15.82	.1030	1.0004				
0.869	31.97	-247.3	2.130	29.93	-13.54	.0978	0.9376				
1.269	30.84	-243.8	2.225	28.17	-14.76	.0924	1.0273				
1.469	29.46	-243.1	2.144	26.73	-14.33	.1001	0.9804				
1.869	29.28	-248.4	2.213	27.53	-11.66	.0944	1.0303				
2.069	29.25	-241.0	2.084	26.09	-15.19	.1044	0.9316				
0.269	25.63	-243.9	2.161	23.30	-11.91	.0938	0.9440	16	115	-135	14
0.669	24.75	-243.5	2.107	22.41	-11.62	.0933	0.8629				
0.869	24.02	-244.1	2.064	21.84	-11.01	.0990	0.8554				
1.269	23.00	-241.5	2.128	20.45	-11.45	.0971	0.9281				
1.469	20.75	-239.8	2.146	18.13	-10.79	.0971	0.9538				
1.869	21.17	-244.5	2.181	19.26	-09.46	.0945	0.9807				
2.069	20.93	-238.8	2.104	18.11	-11.20	.0995	0.9158				
0.269	30.47	-245.1	2.226	28.08	-13.91	.0896	0.9973	20	115	-135	14
0.669	29.72	-245.0	2.099	27.35	-13.56	.0948	0.8657				
0.869	29.84	-245.9	2.127	27.63	-13.18	.0928	0.8851				
1.269	29.23	-244.5	2.145	26.79	-13.54	.0910	0.8927				
1.469	27.95	-242.6	2.207	25.22	-13.72	.0871	0.9421				
1.869	28.06	-248.5	2.288	26.38	-11.05	.0810	0.9947				
2.069	27.98	-241.5	2.155	25.02	-14.22	.0898	0.8952				
0.269	37.28	-250.9	2.241	35.72	-13.98	.0809	0.9213	23	115	-135	14
0.669	32.06	-240.5	2.049	28.59	-17.14	.1094	0.9239				
0.869	31.73	-240.6	2.066	28.31	-16.88	.1026	0.8900				
1.269	31.91	-242.1	2.236	28.82	-16.24	.0879	0.9943				
1.469	30.17	-241.1	2.226	26.97	-15.69	.0893	0.9948				
1.869	29.91	-246.6	2.274	27.83	-12.86	.0852	1.0235				
2.069	30.50	-239.9	2.184	27.00	-16.45	.0910	0.9492				
0.269	01.74	-277.7	1.973	01.72	00.23	.1248	0.9362	00	120	-135	14
0.469	01.18	-270.0	1.982	01.18	00.00	.1237	0.9416				
0.669	00.41	-279.5	1.953	00.40	00.06	.1285	0.9343				
0.869	01.28	-315.0	1.939	00.90	00.90	.1296	0.9222				
1.069	01.23	-301.2	1.993	01.05	00.63	.1232	0.9535				
1.269	01.07	-333.5	2.014	00.47	00.95	.1200	0.9593				
1.469	00.73	-356.1	1.981	00.05	00.72	.1239	0.9411				
1.669	-00.31	-360.0	1.979	00.00	00.00	.1257	0.9517				
1.869	-00.28	-360.0	1.954	00.00	00.00	.1302	0.9485				
2.069	-00.09	-135.0	1.954	00.00	00.00	.1324	0.9643				
0.269	24.63	-241.6	2.145	21.96	-12.30	.0954	0.9365	16	120	-135	14

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL T3ST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
0.469	22.50	-235.3	2.120	18.80	-13.26	.0965	0.9107				
0.669	22.97	-236.8	2.109	19.52	-13.06	.0985	0.9136				
0.869	23.88	-239.9	2.107	20.95	-12.51	.0973	0.8992				
1.069	24.05	-234.7	2.088	20.01	-14.46	.1012	0.9074				
1.269	22.71	-240.8	2.141	20.06	-11.54	.0952	0.9288				
1.469	20.50	-237.8	2.145	17.55	-11.26	.0944	0.9256				
1.669	20.72	-236.9	2.047	17.58	-11.67	.1046	0.8805				
1.869	20.06	-242.3	2.135	17.91	-09.63	.0994	0.9607				
2.069	20.15	-235.1	2.065	16.74	-11.85	.1039	0.8989				
0.269	29.81	-242.7	2.178	26.98	-14.72	.0925	0.9559	20	120	-135	14
0.469	27.47	-236.4	2.103	23.41	-16.05	.0999	0.9181				
0.669	28.94	-238.0	2.061	25.12	-16.33	.1026	0.8827				
0.869	30.04	-242.0	2.127	27.04	-15.18	.0897	0.8563				
1.069	29.08	-237.2	1.939	25.05	-16.76	.1052	0.7487				
1.269	29.27	-243.8	2.049	26.69	-13.89	.0941	0.7944				
1.469	28.84	-240.5	2.202	25.60	-15.17	.0828	0.8884				
1.669	29.90	-239.3	2.205	26.30	-16.36	.0830	0.8939				
1.869	28.95	-247.6	2.247	27.08	-11.90	.0787	0.9061				
2.069	29.26	-240.5	2.142	25.99	-15.42	.0850	0.8299				
0.469	33.67	-245.2	2.152	31.16	-15.61	.0854	0.8466	23	120	-135	14
0.669	32.61	-240.2	2.072	29.03	-17.63	.1031	0.9030				
0.869	32.00	-237.9	2.081	27.89	-18.36	.1018	0.9042				
1.069	33.95	-231.7	2.023	27.84	-22.64	.1058	0.8582				
1.269	32.87	-240.8	2.190	29.42	-17.49	.0867	0.9134				
1.469	31.38	-239.5	2.289	27.72	-17.20	.0802	0.9864				
1.669	33.11	-238.0	2.326	28.94	-19.06	.0795	1.0346				
1.869	34.70	-244.5	2.700	32.00	-16.59	.0592	1.3780				
2.069	32.00	-238.7	2.198	28.09	-17.98	.0843	0.8984				
0.269	23.40	-239.0	2.110	20.35	-12.56	.0987	0.9172	16	125	-135	14
0.669	23.46	-231.2	2.135	18.68	-15.21	.0971	0.9380				
0.869	23.86	-234.4	2.037	19.78	-14.43	.1031	0.8540				
1.269	21.87	-237.3	2.066	18.66	-12.23	.1011	0.8768				
1.469	19.63	-234.8	2.131	16.24	-11.61	.0957	0.9182				
1.869	19.53	-239.5	2.201	16.99	-10.20	.0922	0.9881				
2.069	20.05	-231.9	2.106	16.02	-12.69	.0999	0.9222				
0.269	28.98	-241.3	2.131	25.91	-14.89	.0962	0.9228	20	125	-135	14
0.669	28.81	-230.7	2.065	23.05	-19.20	.1031	0.8925				
0.869	30.67	-234.2	2.054	25.68	-19.13	.0960	0.8169				
1.269	31.21	-238.3	2.212	27.27	-17.65	.0789	0.8592				
1.469	29.48	-238.6	2.232	25.75	-16.41	.0771	0.8657				
1.869	28.23	-241.4	2.018	25.23	-14.41	.0904	0.7283				
2.069	28.22	-239.8	2.008	24.88	-15.10	.0891	0.7056				
0.669	31.20	-236.9	2.130	26.90	-18.30	.0970	0.9298	23	125	-135	14
0.869	31.75	-235.2	2.115	26.93	-19.45	.0990	0.9262				
1.269	34.67	-235.2	2.098	29.59	-21.54	.0916	0.8342				
1.469	32.14	-237.9	2.378	28.02	-18.46	.0714	1.0080				
1.869	33.66	-243.4	2.668	30.77	-16.60	.0572	1.2665				
2.069	32.90	-237.6	2.172	28.64	-19.11	.0813	0.8331				
0.269	21.95	-235.8	2.098	18.43	-12.76	.1007	0.9176	16	130	-135	14

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	23.31	-225.0	2.118	16.94	-16.94	.0981	0.9222				
0.669	23.81	-225.0	2.058	17.32	-17.32	.1028	0.8805				
0.869	22.28	-230.2	1.995	17.47	-14.69	.1120	0.8699				
1.069	23.93	-225.0	1.852	17.42	-17.42	.1279	0.7960				
1.269	21.74	-232.4	2.005	17.53	-13.67	.1094	0.8623				
1.469	19.55	-229.8	2.082	15.17	-12.90	.0989	0.8791				
1.669	20.21	-229.8	2.090	15.70	-13.36	.0989	0.8908				
1.869	18.88	-237.0	2.158	16.00	-10.55	.0927	0.9285				
2.069	20.06	-226.7	2.079	14.88	-14.05	.0994	0.8799				
0.269	27.44	-241.8	2.163	24.58	-13.78	.0933	0.9421	20	130	-135	14
0.469	26.65	-225.0	2.102	19.54	-19.54	.0996	0.9130				
0.669	29.53	-225.0	2.105	21.83	-21.83	.1005	0.9262				
0.869	29.81	-227.8	2.053	22.99	-21.04	.1037	0.8816				
1.069	33.19	-220.2	1.948	22.89	-26.54	.1107	0.7991				
1.269	31.98	-230.9	2.064	25.85	-21.49	.0926	0.8003				
1.469	28.52	-234.0	2.107	23.73	-17.71	.0845	0.7816				
1.669	30.74	-232.4	1.977	25.22	-19.94	.0951	0.7183				
1.869	25.35	-239.8	2.155	22.06	-13.78	.0891	0.8885				
2.069	25.75	-231.1	2.029	20.57	-16.85	.0989	0.8093				
0.269	34.83	-270.0	2.258	34.83	00.00	.0593	0.6945	23	130	-135	14
0.469	26.20	-234.5	1.994	21.83	-15.94	.1076	0.8335				
0.669	30.26	-229.0	2.082	23.76	-20.94	.1024	0.9103				
0.869	31.91	-231.1	2.084	25.85	-21.35	.1005	0.8961				
1.069	36.46	-221.1	1.979	25.90	-29.10	.1098	0.8320				
1.269	35.83	-232.1	2.140	29.67	-23.91	.0895	0.8708				
1.469	32.77	-235.8	2.355	28.03	-19.89	.0689	0.9394				
1.669	33.63	-235.2	2.226	28.64	-20.78	.0776	0.8643				
1.869	32.49	-242.0	2.677	29.34	-16.64	.0527	1.1844				
2.069	33.14	-236.8	2.094	28.64	-19.67	.0811	0.7348				
0.269	19.88	-235.0	2.153	16.49	-11.71	.0963	0.9568	16	135	-135	14
0.469	21.20	-221.9	2.149	14.52	-16.10	.0950	0.9378				
0.669	23.74	-222.7	1.961	14.40	-15.55	.1133	0.8347				
0.869	23.71	-225.0	1.973	14.97	-14.97	.1187	0.8905				
1.069	23.00	-220.4	1.933	15.38	-17.91	.1267	0.8928				
1.269	21.07	-225.0	1.908	15.92	-15.92	.1222	0.8290				
1.469	23.20	-225.0	2.057	14.58	-14.58	.1014	0.8668				
1.669	23.07	-225.0	2.025	14.48	-14.48	.1031	0.8382				
1.869	17.44	-233.7	2.107	14.20	-10.53	.0952	0.8802				
2.069	18.81	-225.0	2.072	13.54	-13.54	.0989	0.8660				
0.269	24.07	-251.7	2.248	22.98	-07.98	.0864	0.9953	20	135	-135	14
0.469	24.97	-218.3	2.095	16.09	-20.07	.1001	0.9089				
0.669	27.91	-218.8	2.074	18.36	-22.43	.1031	0.9051				
0.869	29.92	-223.1	2.079	21.46	-22.79	.1033	0.9139				
1.069	31.70	-215.6	2.115	19.77	-26.66	.1004	0.9399				
1.269	30.85	-224.9	1.948	22.86	-22.93	.1077	0.7780				
1.469	27.38	-225.6	2.179	20.30	-19.91	.0898	0.9292				
1.669	27.76	-225.0	1.964	20.41	-20.41	.1075	0.7957				
1.869	23.87	-236.1	2.157	20.16	-13.86	.0892	0.8915				
2.069	24.77	-228.0	2.090	18.92	-17.15	.0939	0.8452				
0.269	23.71	-278.2	2.236	23.49	03.58	.0675	0.7643	23	135	-135	14

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
0.469	23.18	-225.0	2.076	16.84	-16.84	.1043	0.9192				
0.669	29.16	-221.2	2.068	20.17	-22.77	.1060	0.9217				
0.869	32.61	-223.3	2.041	23.69	-24.96	.1066	0.8889				
1.069	36.55	-215.6	2.004	23.34	-31.08	.1090	0.8584				
1.269	35.87	-225.0	2.108	27.08	-27.08	.0941	0.8709				
1.469	36.30	-225.0	1.951	27.45	-27.45	.0983	0.7127				
1.669	40.02	-225.0	1.944	30.63	-30.63	.1021	0.7321				
1.869	32.15	-238.6	2.117	28.21	-18.13	.0769	0.7222				
2.069	34.28	-235.4	2.061	29.29	-21.15	.0779	0.6698				
0.269	17.56	-237.1	1.857	14.87	-09.75	.1013	0.6351	16	140	-135	14
0.469	13.61	-219.5	2.384	08.75	-10.58	.0782	1.1154				
0.669	18.65	-221.0	2.087	12.48	-14.29	.1039	0.9310				
0.869	18.55	-225.0	2.052	13.35	-13.35	.1107	0.9395				
1.069	21.58	-216.2	1.913	13.14	-17.70	.1247	0.8525				
1.269	21.85	-225.0	1.865	15.83	-15.83	.1272	0.8070				
1.469	21.08	-215.4	1.924	12.58	-17.44	.1162	0.8083				
1.669	19.61	-215.2	1.767	11.60	-16.23	.1326	0.7246				
1.869	16.00	-227.2	2.020	11.88	-11.02	.1044	0.8425				
2.069	15.88	-218.7	2.055	10.08	-12.51	.1023	0.8721				
0.269	20.73	-262.5	1.963	20.56	-02.82	.0974	0.7194	20	140	-135	14
0.469	18.22	-215.7	2.264	10.87	-14.96	.0876	1.0354				
0.669	28.60	-213.1	2.118	16.58	-24.54	.0982	0.9238				
0.869	29.85	-215.8	2.054	18.55	-24.95	.1019	0.8675				
1.069	31.34	-212.0	2.004	17.88	-27.31	.1059	0.8342				
1.269	31.63	-218.2	1.869	20.85	-25.82	.1156	0.7387				
1.469	28.29	-215.2	1.785	17.23	-23.73	.1240	0.6967				
1.669	29.88	-215.6	1.811	18.49	-25.04	.1295	0.7569				
1.869	26.86	-218.7	1.839	17.57	-21.56	.1229	0.7496				
2.069	23.11	-225.0	2.146	16.79	-16.79	.0903	0.8871				
0.269	22.51	-279.1	1.882	22.25	03.75	.0935	0.6100	23	140	-135	14
0.469	17.62	-224.9	2.205	12.63	-12.67	.0930	1.0018				
0.669	28.08	-215.4	2.118	17.17	-23.50	.0991	0.9321				
0.869	32.91	-217.0	2.073	21.27	-27.33	.1050	0.8526				
1.069	38.29	-213.4	2.157	23.48	-33.38	.0941	0.9407				
1.269	36.31	-220.4	1.950	25.46	-29.23	.1078	0.7808				
1.469	35.28	-218.6	2.144	23.81	-28.93	.0857	0.8400				
1.669	36.77	-218.0	1.850	24.70	-30.49	.1097	0.6809				
1.869	34.90	-227.8	1.718	27.32	-25.10	.1180	0.5989				
2.069	33.29	-226.5	1.807	25.46	-24.32	.1043	0.6058				
0.269	07.99	-213.6	1.661	04.44	-06.66	.1021	0.4753	16	145	-135	14
0.469	06.32	-239.4	2.062	05.44	-03.22	.0832	0.7167				
0.669	16.47	-225.0	1.974	11.81	-11.81	.1012	0.7611				
0.869	14.25	-218.6	1.959	09.00	-11.22	.1083	0.7951				
1.069	19.04	-211.9	1.842	10.33	-16.33	.1331	0.8154				
1.269	20.05	-213.6	1.869	11.41	-16.90	.1307	0.8347				
1.469	20.39	-211.8	1.820	11.08	-17.53	.1311	0.7767				
1.669	21.88	-213.8	1.628	12.59	-18.45	.1523	0.6751				
1.869	15.40	-218.4	1.774	09.70	-12.18	.1312	0.7247				
2.069	12.32	-215.7	2.120	07.26	-10.05	.0961	0.9069				
0.269	11.14	-260.1	1.820	10.97	-01.93	.1046	0.6196	20	145	-135	14

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	07.40	-207.6	2.253	03.44	-06.56	.0824	0.9570				
0.669	24.42	-213.3	2.228	13.99	-20.78	.0854	0.9547				
0.869	30.13	-213.0	2.069	17.54	-25.95	.0993	0.8648				
1.069	29.83	-210.6	1.983	16.27	-26.26	.1064	0.8110				
1.269	28.29	-216.3	1.825	17.67	-23.44	.1267	0.7562				
1.469	27.57	-212.6	1.829	15.71	-23.74	.1292	0.7757				
1.669	29.86	-214.4	1.882	17.97	-25.34	.1222	0.7965				
1.869	27.13	-220.7	1.796	18.47	-21.22	.1270	0.7253				
2.069	24.94	-210.0	1.824	13.09	-21.93	.1215	0.7243				
0.269	14.25	-270.0	2.006	14.25	00.00	.1019	0.8048	23	145	-135	14
0.469	10.08	-211.0	2.356	05.23	-08.66	.0824	1.1240				
0.669	21.97	-211.5	2.312	11.90	-18.98	.0814	1.0370				
0.869	33.22	-212.0	2.116	19.13	-29.04	.0949	0.8891				
1.069	36.50	-211.7	2.345	21.24	-32.19	.0772	1.0360				
1.269	35.76	-217.1	2.102	23.48	-29.87	.0925	0.8487				
1.469	34.96	-214.7	2.135	21.70	-29.89	.0870	0.8404				
1.669	33.99	-214.8	1.650	21.04	-28.97	.1364	0.6246				
1.869	34.82	-220.7	1.599	24.39	-27.80	.1386	0.5882				
2.069	32.28	-215.8	1.774	20.27	-27.12	.1199	0.6625				
0.269	00.65	-270.0	1.882	00.65	00.00	.1439	0.9377	00	150	-135	14
0.469	02.15	-160.0	1.865	-00.73	-02.02	.1486	0.9432				
0.669	01.39	-135.0	1.902	-00.98	-00.98	.1341	0.9016				
0.869	01.02	-360.0	2.034	00.00	01.02	.1175	0.9698				
1.069	01.77	-225.0	2.046	01.25	-01.25	.1147	0.9645				
1.269	01.72	-300.2	2.062	01.48	00.86	.1125	0.9694				
1.469	03.95	-315.0	2.105	02.79	02.79	.1046	0.9637				
1.669	02.85	-360.0	2.113	00.00	02.85	.1050	0.9798				
1.869	02.75	-315.0	2.107	01.94	01.94	.1076	0.9952				
2.069	01.87	-315.0	2.052	01.32	01.32	.1159	0.9836				
0.269	02.43	-060.9	1.489	-02.12	01.18	.1066	0.3852	16	150	-135	14
0.469	06.71	-326.0	1.660	03.76	05.57	.0794	0.3690				
0.669	09.96	-240.2	1.584	08.66	-04.98	.1139	0.4730				
0.869	13.07	-213.9	1.585	07.37	-10.90	.1228	0.5103				
1.069	16.03	-203.7	1.880	06.58	-14.73	.1304	0.8474				
1.269	18.88	-205.2	1.964	08.28	-17.19	.1276	0.9440				
1.469	21.69	-210.3	1.999	10.78	-18.06	.1233	0.9631				
1.669	24.44	-216.1	1.874	14.99	-20.16	.1340	0.8624				
1.869	15.75	-235.3	1.868	13.05	-09.12	.1198	0.7639				
2.069	13.24	-205.6	1.739	05.80	-11.97	.1228	0.6427				
0.269	02.92	-295.9	1.672	02.62	01.27	.1032	0.4885	20	150	-135	14
0.469	03.31	-150.0	1.718	-01.65	-02.86	.0978	0.4960				
0.669	11.93	-207.4	1.983	05.55	-10.62	.0831	0.6331				
0.869	27.06	-212.4	2.025	15.30	-23.33	.0989	0.8045				
1.069	30.46	-209.8	1.494	16.29	-27.03	.1273	0.4632				
1.269	21.49	-214.5	2.120	12.57	-17.97	.1023	0.9655				
1.469	26.19	-211.3	2.052	14.33	-22.79	.1145	0.9716				
1.669	27.85	-214.2	2.024	16.54	-23.60	.1163	0.9443				
1.869	24.99	-221.5	2.010	17.16	-19.24	.1161	0.9232				
2.069	22.58	-212.2	1.889	12.49	-19.38	.1240	0.8172				
0.269	07.90	-270.0	1.982	07.90	00.00	.0988	0.7515	23	150	-135	14

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
0.469	08.69	-200.8	1.999	03.10	-08.13	.0898	0.7015				
0.669	19.74	-200.6	2.018	07.19	-16.56	.0797	0.6420				
0.869	30.53	-211.0	2.152	16.89	-26.81	.0779	0.7725				
1.069	47.97	-210.5	1.739	29.27	-43.63	.1160	0.6071				
1.269	34.84	-215.6	2.033	22.05	-29.50	.0938	0.7725				
1.469	34.62	-212.4	2.091	20.30	-30.23	.0888	0.8000				
1.669	34.04	-214.0	1.698	20.69	-29.25	.1378	0.6783				
1.869	27.98	-219.0	2.029	18.48	-22.43	.1125	0.9205				
2.069	28.46	-212.5	1.979	16.23	-24.56	.1173	0.8881				
0.269	07.98	-028.7	1.599	-03.85	07.01	.1092	0.4634	16	155	-135	14
0.869	11.73	-217.9	1.619	07.26	-09.30	.1323	0.5782				
1.069	11.75	-165.2	1.932	-03.04	-11.37	.1282	0.9029				
1.269	16.69	-180.0	2.066	00.00	-16.69	.1152	0.9997				
1.469	24.18	-205.5	2.073	10.94	-22.06	.1145	1.0035				
1.669	28.45	-218.8	2.141	18.75	-22.89	.1064	1.0377				
1.869	23.36	-225.0	1.995	16.98	-16.98	.1067	0.8285				
2.069	09.95	-206.2	1.805	04.42	-08.94	.1168	0.6765				
0.269	02.42	-331.1	1.905	01.17	02.11	.0989	0.6676	20	155	-135	14
0.469	03.54	-045.0	1.640	-02.50	02.50	.1041	0.4695				
0.669	04.10	-135.0	1.616	-02.90	-02.90	.0930	0.4047				
0.869	19.18	-216.4	1.868	11.66	-15.64	.0894	0.5701				
1.069	13.31	-202.5	1.978	05.17	-12.32	.0998	0.7545				
1.269	16.62	-209.6	2.245	08.49	-14.72	.0890	1.0221				
1.469	25.92	-212.8	2.124	14.75	-22.22	.1045	0.9924				
1.669	27.98	-212.1	2.160	15.76	-24.23	.1013	1.0173				
1.869	26.06	-221.1	2.045	17.82	-20.22	.1119	0.9387				
2.069	23.68	-213.9	1.957	13.74	-20.00	.1175	0.8596				
0.269	04.11	-270.0	1.819	04.11	00.00	.1014	0.5999	23	155	-135	14
0.469	03.94	-141.2	1.955	-02.47	-03.07	.0865	0.6315				
0.669	13.71	-182.9	1.960	00.68	-13.19	.0772	0.5675				
0.869	26.26	-204.3	1.980	11.47	-24.21	.0726	0.5505				
1.069	12.12	-205.5	2.389	05.28	-10.96	.0544	0.7823				
1.269	30.82	-219.0	2.175	20.57	-24.87	.0738	0.7596				
1.469	35.61	-211.2	2.035	20.35	-31.49	.0898	0.7423				
1.669	31.07	-214.6	1.950	18.88	-26.37	.1081	0.7825				
1.869	27.80	-216.5	2.019	17.41	-22.96	.1128	0.9092				
2.069	28.25	-211.9	1.978	15.85	-24.52	.1173	0.8870				
0.269	05.25	-360.0	2.026	00.00	05.25	.1020	0.8311	16	160	-135	14
0.469	04.66	-300.6	1.984	04.01	02.37	.1083	0.8267				
0.669	04.62	-240.4	1.909	04.01	-02.28	.1189	0.8080				
0.869	08.08	-211.3	1.883	04.21	-06.91	.1273	0.8313				
1.069	03.47	-150.2	1.916	-04.23	-07.36	.1235	0.8479				
1.269	19.01	-143.4	1.694	-11.60	-15.46	.1200	0.5869				
1.469	23.53	-240.3	1.681	20.71	-12.17	.0936	0.4493				
1.669	26.29	-225.0	1.740	19.25	-19.25	.1348	0.7068				
2.069	10.69	-180.0	1.988	00.00	-10.69	.1116	0.8568				
0.269	04.36	-331.5	1.811	02.08	03.83	.1001	0.5849	20	160	-135	14
0.469	04.64	-045.0	1.829	-03.29	03.29	.1000	0.6009				
0.669	02.24	-060.3	1.872	-01.94	01.11	.0958	0.6150				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.269	05.97	-211.5	1.778	03.12	-05.09	.0932	0.5178				
1.069	07.17	-178.6	1.518	-00.17	-07.16	.1051	0.3961				
1.669	29.20	-216.1	1.547	18.22	-24.30	.1059	0.4164				
1.869	31.26	-218.7	1.807	20.78	-25.35	.1074	0.6240				
2.069	26.35	-213.0	1.906	15.09	-22.55	.1189	0.8040				
0.269	02.13	-295.6	1.670	01.92	00.92	.1041	0.4910	23	160	-135	14
0.469	05.16	-090.0	1.650	-05.16	00.00	.0915	0.4189				
0.669	07.29	-157.0	1.697	-02.86	-06.71	.0761	0.3737				
0.869	20.34	-183.8	1.688	01.40	-20.29	.0727	0.3525				
1.069	02.71	-161.8	1.875	-00.84	-02.57	.0648	0.4178				
1.269	19.14	-225.0	1.870	13.78	-13.78	.0740	0.4735				
1.469	30.89	-210.2	1.862	16.74	-27.34	.0977	0.6179				
1.669	25.13	-213.0	1.868	14.33	-21.47	.1122	0.7158				
1.869	28.93	-213.9	1.864	17.13	-24.64	.1194	0.7567				
2.069	30.78	-210.8	1.893	16.96	-27.09	.1141	0.7560				
0.269	03.46	-329.3	1.960	01.76	02.97	.1063	0.7816	16	165	-135	14
0.469	05.52	-270.0	1.852	05.52	00.00	.1071	0.6667				
0.669	02.09	-225.0	1.777	01.48	-01.48	.1195	0.6626				
0.869	05.17	-207.7	1.881	02.40	-04.58	.1254	0.8163				
1.069	04.58	-149.7	1.945	-02.31	-03.95	.1181	0.8486				
1.269	11.70	-121.5	1.919	-10.01	-06.17	.1091	0.7532				
1.469	09.98	-180.0	2.321	00.00	-09.98	.0646	0.8350				
1.669	05.73	-299.8	1.823	04.97	02.85	.1004	0.5975				
1.869	19.61	-237.9	1.651	16.79	-10.72	.1416	0.6493				
2.069	16.98	-188.9	1.832	02.70	-16.78	.1335	0.8054				
0.269	06.44	-329.6	1.686	03.26	05.56	.0999	0.4829	20	165	-135	14
0.469	04.41	-032.1	1.758	-02.34	03.73	.0989	0.5330				
0.669	03.60	-037.7	1.861	-02.20	02.85	.0976	0.6161				
0.869	02.19	-209.9	1.761	01.09	-01.89	.1007	0.5453				
1.069	06.43	-060.5	1.755	-05.60	03.17	.0987	0.5296				
1.269	05.54	-158.9	1.813	-02.00	-05.17	.0884	0.5183				
1.469	26.19	-208.7	1.595	13.28	-23.33	.0989	0.4174				
1.669	02.96	-225.0	1.589	02.09	-02.09	.0833	0.3483				
1.869	30.61	-232.4	1.496	25.11	-19.84	.1102	0.4019				
0.269	01.07	-315.0	1.585	00.75	00.75	.1064	0.4424	23	165	-135	14
0.469	05.11	-046.9	1.673	-03.73	03.49	.0933	0.4421				
0.669	02.96	-061.1	1.818	-02.59	01.43	.0731	0.4318				
0.869	06.62	-173.7	1.822	-00.72	-06.58	.0658	0.3911				
1.069	08.07	-029.4	1.758	-03.98	07.04	.0706	0.3803				
1.269	06.44	-225.0	1.691	04.56	-04.56	.0801	0.3899				
1.469	26.94	-210.3	1.508	14.58	-23.58	.1077	0.4001				
1.669	14.75	-208.8	1.516	07.22	-12.99	.1027	0.3861				
0.469	09.49	-210.3	1.794	04.82	-08.21	.1014	0.5773	16	170	-135	14
0.669	00.79	-180.0	1.735	00.00	-00.79	.1122	0.5839				
1.069	04.59	-181.7	1.826	00.13	-04.58	.1173	0.7014				
1.269	05.68	-045.0	1.858	-04.02	04.02	.1139	0.7152				
1.269	05.68	-090.0	1.858	-05.68	00.00	.1139	0.7152				
1.669	02.31	-330.2	1.990	01.14	02.00	.1100	0.8478				
1.869	07.85	-240.8	1.919	06.86	-03.84	.1275	0.8799				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_s	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
0.469	02.14	-059.9	1.748	-01.85	01.07	.0961	0.5102	20	170	-135	14
0.669	03.86	-022.6	1.868	-01.48	03.56	.0974	0.6215				
1.069	06.18	-030.7	1.841	-03.16	05.31	.1017	0.6219				
1.269	04.57	-046.6	2.243	-03.32	03.14	.0832	0.9517				
1.669	08.58	000.0	2.269	00.00	08.58	.0758	0.9034				
1.869	02.99	-300.1	2.375	02.58	01.50	.0743	1.0452				
0.469	03.32	-029.7	1.627	-01.89	03.32	.0983	0.4347	23	170	-135	14
0.669	09.96	-012.3	1.938	-02.14	09.73	.0689	0.4897				
1.069	15.24	-013.6	2.124	-03.66	14.83	.0679	0.6450				
1.269	03.85	000.0	2.242	00.00	03.85	.0686	0.7336				
1.669	03.88	-038.3	1.940	-02.40	03.04	.1047	0.7464				
1.869	04.04	-209.3	2.166	01.97	-03.52	.0911	0.9263				
0.469	11.81	-187.3	1.805	01.52	-11.71	.1009	0.5843	16	175	-135	14
0.669	05.26	-155.2	1.836	-02.21	-04.77	.1040	0.6312				
1.069	07.13	-155.5	1.780	-02.96	-06.49	.1156	0.6441				
1.269	01.04	-060.1	1.822	-00.90	00.51	.1124	0.6680				
1.669	01.35	-014.6	1.998	-00.34	01.30	.1160	0.9047				
1.869	03.11	-225.0	1.938	02.20	-02.20	.1295	0.9204				
0.469	01.38	-135.0	1.789	-00.97	-00.97	.0962	0.5435	20	175	-135	14
0.669	00.85	-011.3	1.899	-00.16	00.83	.0965	0.6454				
1.069	06.05	-338.5	1.837	02.22	05.65	.1034	0.6288				
1.269	06.77	-028.1	1.961	-03.20	05.97	.1075	0.7918				
1.669	08.87	-002.1	2.183	-00.32	08.86	.0839	0.8733				
1.869	06.60	-352.0	2.153	00.92	06.53	.0925	0.9187				
0.469	03.30	-329.4	1.615	01.68	02.84	.0999	0.4342	23	175	-135	14
0.669	15.41	000.0	1.983	00.00	15.41	.0649	0.4941				
1.069	18.10	-359.8	1.992	00.06	18.10	.0711	0.5492				
1.269	15.00	-012.1	1.894	-03.21	14.68	.0848	0.5630				
1.669	06.56	-360.0	1.767	00.00	06.56	.1201	0.6562				
1.869	01.69	-045.0	1.761	-01.20	01.20	.1276	0.6910				
0.269	00.29	-210.2	1.865	00.14	-00.25	.1441	0.9150	00	180	-135	14
0.469	00.69	-209.6	1.904	00.34	-00.60	.1422	0.9583				
0.669	01.06	-135.0	1.881	-00.74	-00.74	.1434	0.9330				
0.869	-00.60	-090.0	1.929	00.00	00.00	.1356	0.9499				
1.069	00.40	-207.9	1.932	00.18	-00.35	.1346	0.9476				
1.269	00.15	-144.1	1.922	-00.08	-00.12	.1361	0.9437				
1.469	00.50	-172.4	1.898	-00.06	-00.49	.1411	0.9425				
1.669	01.61	-135.0	1.888	-01.13	-01.13	.1457	0.9586				
1.869	01.97	-202.9	1.744	00.76	-01.81	.1582	0.8345				
2.069	04.08	-045.0	2.121	-02.88	02.88	.1026	0.9691				
0.269	06.55	-194.6	1.848	01.65	-06.34	.1081	0.6687	16	180	-135	14
0.469	06.52	-166.2	1.776	-01.56	-06.33	.1018	0.5638				
0.669	06.94	-169.7	1.880	-01.24	-06.82	.1023	0.6644				
0.869	05.52	-180.0	1.983	00.00	-05.52	.1113	0.8480				
1.069	01.67	-151.8	1.969	-00.78	-01.47	.1117	0.8326				
1.269	00.43	-016.3	1.986	-00.12	00.41	.1048	0.8024				
1.469	03.09	-024.8	1.976	-01.67	03.62	.1067	0.8043				
1.669	02.59	-045.0	1.927	-01.83	01.83	.1172	0.8187				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.869	03.11	-151.3	1.852	-01.49	-02.72	.1349	0.8392				
2.069	07.33	-180.0	1.885	00.00	-07.33	.1403	0.9186				
0.269	07.64	-206.1	1.792	03.37	-06.86	.0880	0.4999	20	180	-135	14
0.469	01.02	-225.0	1.777	00.72	-00.72	.0968	0.5367				
0.669	01.35	-067.8	1.871	-01.24	00.51	.0973	0.6235				
0.869	01.59	-151.2	1.812	-00.76	-01.39	.0953	0.5578				
1.069	08.02	-315.0	1.804	05.68	05.68	.1015	0.5868				
1.269	07.81	-352.8	1.732	00.98	07.74	.1146	0.5935				
1.469	09.88	000.0	1.790	00.00	09.88	.1012	0.5725				
1.669	09.18	000.0	1.894	00.00	09.18	.0875	0.5810				
1.869	07.82	-018.9	1.654	-02.54	07.40	.1107	0.5099				
2.069	01.34	-270.0	1.596	01.34	00.00	.1308	0.5526				
0.269	02.49	-045.0	1.521	-01.76	01.76	.1032	0.3907	23	180	-135	14
0.469	06.60	-300.2	1.646	05.71	03.33	.0963	0.4384				
0.669	17.46	-358.9	1.972	00.34	17.45	.0614	0.4596				
0.869	25.72	000.0	1.788	00.00	25.72	.0679	0.3829				
1.069	12.79	-346.8	1.762	02.96	12.46	.0708	0.3838				
1.269	17.72	-360.0	1.582	00.00	17.72	.0936	0.3873				
1.469	15.38	-017.1	1.548	-04.62	14.73	.1022	0.4026				
1.669	02.74	-135.0	1.498	-01.94	-01.94	.1076	0.3939				
0.469	02.60	-090.0	1.942	-02.60	00.00	.1028	0.7347	16	185	-135	14
0.669	02.94	-155.7	2.021	-01.21	-02.68	.0997	0.8055				
1.069	05.12	-209.2	1.939	02.50	-04.47	.1185	0.8433				
1.269	03.03	-302.5	1.741	02.55	01.62	.1150	0.6041				
1.669	08.27	-076.8	1.699	-08.05	01.90	.1129	0.5566				
1.869	06.03	-139.5	1.721	-03.92	-04.59	.1361	0.6936				
0.469	03.78	-299.3	1.781	03.29	01.85	.0964	0.5378	20	185	-135	14
0.669	02.09	-028.6	1.858	-01.00	01.83	.0990	0.6217				
1.069	05.88	-286.9	1.579	05.62	01.71	.1003	0.4131				
1.269	03.86	-325.9	2.881	02.16	03.19	.0280	0.8595				
1.669	08.68	-135.0	1.564	-06.16	-06.16	.0903	0.3641				
1.869	04.83	-035.5	1.776	-02.80	03.93	.0975	0.5399				
0.469	09.11	-225.0	1.644	06.46	-06.46	.0921	0.4180	-23	185	-135	14
0.669	13.90	-344.5	1.778	03.78	13.41	.0684	0.3800				
1.069	03.41	-332.1	1.885	01.59	03.01	.0655	0.4290				
1.269	08.03	-013.7	1.770	-01.91	07.80	.0807	0.4428				
1.669	18.94	-146.5	1.921	-10.72	-15.96	.1075	0.7439				
1.869	04.81	-149.4	2.017	-02.45	-04.14	.1005	0.8075				
0.469	03.70	-090.0	2.004	-03.70	00.00	.1067	0.8402	16	190	-135	14
0.669	00.64	-125.9	2.039	-00.68	-00.49	.1064	0.8847				
1.069	09.24	-209.3	1.881	04.55	-08.07	.1273	0.8282				
1.269	09.09	-265.1	1.710	09.05	-00.78	.1103	0.5527				
1.669	21.27	-117.7	1.809	-19.01	-10.25	.1004	0.5845				
1.869	15.28	-139.6	1.711	-10.04	-11.75	.1438	0.7218				
0.469	05.63	-299.6	1.821	04.89	02.78	.0974	0.5779	20	190	-135	14
0.669	03.86	-330.2	1.861	01.92	03.35	.0999	0.6302				
1.069	07.71	-155.5	1.777	-03.21	-07.02	.0963	0.5340				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_0 = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_1	θ	β	RUN
1.269	01.62	-240.1	1.938	01.40	-00.80	.0858	0.6094				
1.669	25.19	-145.5	2.064	-14.91	-21.18	.0933	0.8061				
1.869	14.70	-136.1	2.226	-10.31	-10.70	.0878	0.9779				
0.469	09.66	-241.4	1.641	08.49	-04.65	.0909	0.4108	23	190	-135	14
0.669	05.98	-320.5	1.765	03.81	04.62	.0701	0.3817				
1.069	07.26	-180.0	1.763	00.00	-07.26	.0633	0.3436				
1.269	04.50	-112.0	1.642	-04.17	-01.68	.0817	0.3696				
1.669	26.34	-143.6	1.934	-16.37	-21.72	.1123	0.7927				
1.869	20.67	-151.8	2.046	-10.10	-18.39	.1078	0.9064				
0.469	05.45	-030.0	2.057	-02.73	04.72	.1037	0.8866	16	195	-135	14
0.669	02.94	-120.1	1.998	-02.54	-01.47	.1145	0.8932				
1.069	12.62	-192.8	1.782	02.84	-12.31	.1361	0.7608				
1.269	15.11	-224.3	1.857	10.67	-10.93	.1099	0.6894				
1.669	29.77	-141.4	1.955	-19.63	-24.08	.1133	0.8264				
0.469	04.95	-296.2	1.891	04.44	02.18	.0967	0.6394	20	195	-135	14
0.669	04.50	-309.6	1.779	03.47	02.87	.0997	0.5549				
1.069	16.31	-152.5	1.568	-07.69	-14.55	.1094	0.4435				
1.269	14.57	-149.1	1.835	-07.60	-12.57	.0947	0.5742				
1.669	28.32	-147.3	2.059	-16.23	-24.39	.1069	0.9166				
1.869	28.04	-148.2	2.020	-15.67	-24.35	.1132	0.9140				
0.469	09.76	-213.4	1.684	05.40	-08.17	.0929	0.4475	23	195	-135	14
0.669	04.57	-225.0	1.866	03.23	-03.23	.0683	0.4342				
1.069	22.93	-146.6	1.761	-13.10	-19.45	.0636	0.3443				
1.269	13.14	-128.5	1.832	-10.35	-08.26	.0733	0.4423				
1.669	29.04	-145.4	2.000	-17.49	-24.56	.1131	0.8853				
1.869	28.03	-150.9	1.982	-14.51	-24.94	.1176	0.8946				
0.469	06.81	-011.1	1.651	-01.31	06.68	.1008	0.4623	16	200	-135	14
1.069	13.51	-158.3	1.907	-05.07	-12.58	.1339	0.9073				
1.669	26.03	-145.9	1.909	-15.31	-22.01	.1282	0.8709				
0.469	04.59	-246.4	1.808	04.20	-01.84	.0978	0.5688	20	200	-135	14
1.069	23.29	-142.6	1.652	-14.65	-18.87	.1102	0.5061				
1.669	28.07	-146.3	2.028	-16.48	-23.92	.1112	0.9088				
0.469	10.62	-135.0	1.751	-07.55	-07.55	.0975	0.5202	23	200	-135	14
1.069	34.09	-140.6	1.826	-23.24	-27.60	.0791	0.4729				
1.669	30.46	-145.9	2.035	-18.24	-25.96	.1098	0.9067				
0.469	08.08	-117.2	1.494	-07.19	-03.71	.0973	0.3540	16	205	-135	14
1.069	16.49	-147.8	1.931	-08.96	-14.06	.1284	0.9025				
1.669	20.94	-147.8	1.902	-11.52	-17.94	.1292	0.8682				
0.469	08.35	-181.3	1.683	00.19	-08.34	.0995	0.4788	20	205	-135	14
1.069	27.81	-145.9	1.916	-16.47	-23.59	.1089	0.7476				
1.669	27.64	-145.5	2.038	-16.52	-23.34	.1127	0.9354				
0.469	14.09	-151.0	1.770	-06.93	-12.38	.1034	0.5673	23	205	-135	14
1.069	38.37	-143.3	1.968	-25.32	-32.40	.0908	0.6757				
1.669	29.90	-144.2	1.913	-18.59	-25.00	.1110	0.7590				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	02.59	-211.8	1.896	01.36	-02.20	.1398	0.9314	00	210	-135	14
0.669	01.09	-119.8	1.962	-00.94	-00.54	.1268	0.9354				
1.069	00.82	-045.0	2.033	-00.58	00.58	.1168	0.9617				
1.269	01.80	-045.0	2.036	-01.27	01.27	.1157	0.9575				
1.669	02.03	-038.4	2.086	-01.26	01.59	.1091	0.9765				
1.869	01.62	-034.4	2.062	-00.91	01.33	.1128	0.9723				
0.469	20.81	-135.0	1.574	-15.04	-15.04	.1035	0.4234	16	210	-135	14
0.669	13.44	-131.9	1.552	-10.08	-09.06	.1140	0.4516				
1.069	19.32	-141.4	1.924	-12.33	-15.32	.1239	0.8616				
1.269	20.26	-150.2	1.882	-10.39	-17.76	.1337	0.8713				
1.669	18.91	-144.8	1.917	-11.17	-15.63	.1222	0.8404				
1.869	18.69	-147.8	1.781	-10.21	-15.97	.1341	0.7483				
0.469	19.41	-147.2	1.691	-10.80	-16.49	.1050	0.5113	20	210	-135	14
0.669	13.81	-149.1	2.121	-07.19	-11.91	.0781	0.7374				
1.069	28.98	-144.0	2.019	-18.03	-24.13	.1052	0.8476				
1.269	27.54	-144.5	1.965	-16.84	-23.00	.1184	0.8774				
1.669	26.96	-144.1	1.999	-16.60	-22.39	.1198	0.9364				
1.869	29.09	-147.1	1.870	-16.81	-25.03	.1279	0.8183				
0.469	19.44	-136.5	1.878	-13.65	-14.36	.1069	0.6922	23	210	-135	14
0.669	20.23	-154.5	2.198	-09.01	-18.39	.0772	0.8230				
1.069	36.68	-144.0	2.034	-23.64	-31.07	.0960	0.7923				
1.269	38.19	-144.3	2.068	-24.65	-32.57	.0937	0.8153				
1.669	34.99	-141.3	2.031	-23.63	-28.64	.0951	0.7810				
1.869	33.48	-146.9	1.706	-19.85	-28.98	.1422	0.7080				
0.469	24.07	-138.0	1.816	-16.64	-18.36	.1061	0.6248	16	215	-135	14
1.069	21.25	-135.4	2.017	-15.27	-15.47	.1132	0.9099				
1.669	19.96	-140.1	1.952	-13.11	-15.56	.1100	0.7988				
0.469	24.45	-144.2	2.000	-14.89	-20.24	.1038	0.8119	20	215	-135	14
1.069	30.68	-141.5	2.123	-20.27	-24.90	.0942	0.8933				
1.669	29.63	-143.1	1.836	-18.85	-24.45	.1276	0.7750				
0.469	22.01	-180.0	2.040	00.00	-22.01	.1079	0.8986	23	215	-135	14
1.069	35.10	-141.4	2.111	-23.67	-28.77	.0931	0.8664				
1.669	37.49	-135.0	2.167	-28.47	-28.47	.0856	0.8699				
0.469	23.15	-139.8	2.050	-15.42	-18.08	.1041	0.8809	16	220	-135	14
1.069	21.63	-180.0	2.039	00.00	-21.63	.1111	0.9233				
1.669	20.27	-132.8	2.086	-15.16	-14.08	.0983	0.8802				
0.469	25.17	-139.7	2.056	-16.90	-19.71	.1060	0.9051	20	220	-135	14
1.069	31.45	-136.5	2.192	-22.83	-23.92	.0896	0.9463				
1.669	27.27	-128.3	2.120	-22.02	-17.71	.0955	0.9013				
0.469	23.86	-128.3	2.021	-19.14	-15.32	.1101	0.8899	23	220	-135	14
1.069	35.97	-135.0	2.251	-27.16	-27.16	.0845	0.9787				
1.669	37.99	-133.5	2.113	-29.53	-28.26	.0868	0.8100				
0.469	23.46	-135.0	2.064	-17.06	-17.06	.1035	0.8947	16	225	-135	14
1.069	21.50	-133.7	2.069	-16.02	-15.09	.1073	0.9339				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

γ	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
1.669	20.18	-128.0	2.114	-16.15	-12.75	.0971	0.9077				
0.469	26.46	-180.0	2.029	00.00	-26.46	.1083	0.8865	20	225	-135	14
1.069	30.97	-131.9	2.115	-24.07	-21.84	.0928	0.8684				
1.669	28.93	-127.6	1.955	-23.64	-18.63	.1047	0.7640				
0.469	26.75	-123.6	2.003	-22.77	-15.58	.1080	0.8495	23	225	-135	14
1.069	33.39	-129.0	2.079	-27.12	-22.52	.0976	0.8639				
1.669	34.13	-123.8	2.143	-29.39	-20.65	.0839	0.8207				
0.469	00.19	-090.0	1.949	-00.19	00.00	.1307	0.9445	00	240	-135	14
1.069	-00.39	-239.9	1.981	00.00	00.00	.1228	0.9331				
1.669	-00.45	-225.0	1.961	00.00	00.00	.1298	0.9558				
0.469	23.94	-121.4	2.092	-20.75	-13.02	.0971	0.8774	16	240	-135	14
1.069	22.71	-118.1	2.214	-20.26	-11.15	.0895	0.9783				
1.669	21.72	-118.8	2.085	-19.24	-10.86	.1034	0.9240				
0.469	29.28	-121.1	2.032	-25.64	-16.15	.1040	0.8556	20	240	-135	14
1.069	29.13	-116.5	2.176	-26.50	-13.96	.0890	0.9169				
1.669	29.02	-116.6	2.144	-26.38	-13.94	.0938	0.9185				
0.469	33.99	-122.0	1.989	-29.76	-19.66	.1080	0.8311	23	240	-135	14
1.069	31.59	-117.7	2.205	-28.56	-15.95	.0900	0.9695				
1.669	31.12	-118.2	2.210	-28.01	-15.92	.0920	1.0001				
0.269	00.86	-360.0	1.910	00.00	00.86	.1321	0.8985	08	000	045	15
0.869	00.53	-030.0	1.789	-00.26	00.45	.1452	0.8202				
1.469	03.17	-360.0	1.849	00.00	03.17	.1414	0.8761				
2.069	08.29	-360.0	2.119	00.00	08.29	.1023	0.9636				
0.269	01.40	-335.0	1.851	00.59	01.26	.1308	0.8126	12	000	045	15
0.869	01.23	-345.5	1.764	00.30	01.19	.1473	0.8012				
1.469	13.70	-357.8	2.102	00.53	13.69	.0958	0.8790				
2.069	10.17	-360.0	2.003	00.00	10.17	.1200	0.9430				
0.269	04.22	-337.8	1.844	01.59	03.90	.1292	0.7938	16	000	045	15
0.869	04.09	-353.7	1.752	00.45	04.06	.1526	0.8150				
1.469	16.13	-355.8	2.081	01.21	16.08	.1024	0.9092				
2.069	12.16	-360.0	1.917	00.00	12.16	.1362	0.9372				
0.269	06.77	-342.3	1.836	02.06	06.45	.1343	0.8155	20	000	045	15
0.869	10.76	-352.5	1.813	01.42	10.67	.1488	0.8724				
1.469	08.23	-360.0	1.585	00.00	08.23	.1751	0.7278				
2.069	14.22	-360.0	1.854	00.00	14.22	.1511	0.9432				
0.269	08.05	-344.0	1.800	02.23	07.74	.1447	0.8313	23	000	045	15
0.869	12.66	-353.5	1.774	01.45	12.58	.1559	0.8609				
1.469	09.32	-360.0	1.530	00.00	09.32	.1932	0.7408				
2.069	15.60	-360.0	1.825	00.00	15.60	.1603	0.9570				
0.269	02.81	-300.1	1.927	02.43	01.41	.1304	0.9111	08	015	045	15
0.869	02.76	-360.0	1.832	00.00	02.76	.1470	0.8871				
1.469	05.97	-342.6	1.971	01.79	05.69	.1265	0.9465				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ε	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
2.069	06.09	-331.9	1.976	02.87	05.37	.1294	0.9755				
0.269	04.43	-310.6	1.909	03.36	02.88	.1283	0.8716	12	015	045	15
0.869	05.21	-319.2	1.820	03.41	03.94	.1523	0.9025				
1.469	10.06	-331.6	1.953	04.82	08.87	.1286	0.9351				
2.069	11.52	-328.3	2.044	06.11	09.83	.1169	0.9793				
0.269	06.69	-306.0	1.859	05.42	03.94	.1276	0.8028	16	015	045	15
0.869	08.60	-360.0	1.768	00.00	08.60	.1463	0.8004				
1.469	13.87	-327.1	1.933	07.63	11.71	.1259	0.9878				
2.069	13.47	-327.6	1.964	07.31	11.43	.1279	0.9467				
0.269	09.55	-307.5	1.846	07.60	05.84	.1322	0.8153	20	015	045	15
0.869	12.59	-327.9	1.847	06.76	10.71	.1321	0.8157				
1.469	15.54	-327.3	1.831	08.54	13.17	.1384	0.8340				
2.069	16.68	-326.0	1.944	09.51	13.95	.1336	0.9587				
0.269	11.57	-307.3	1.818	09.24	07.07	.1402	0.8279	23	015	045	15
0.869	15.23	-329.2	1.854	07.93	13.16	.1360	0.8488				
1.469	17.10	-326.7	1.797	09.63	14.49	.1478	0.8455				
2.069	17.98	-326.0	1.884	10.28	15.05	.1466	0.9585				
2.069	01.81	-045.0	2.101	-01.28	01.28	.1190	1.0900	00	030	045	15
0.269	03.96	-270.7	1.929	03.95	00.04	.1270	0.8902	08	030	045	15
0.669	05.29	-270.0	1.803	05.29	00.00	.1423	0.8217				
0.869	03.65	-315.0	1.919	02.58	02.58	.1265	0.8731				
1.269	05.03	-315.0	2.006	03.56	03.56	.1196	0.9449				
1.469	05.93	-305.1	1.948	04.85	03.41	.1278	0.9224				
1.869	06.48	-360.0	1.976	00.00	06.48	.1304	0.9829				
2.069	05.75	-305.8	1.932	04.66	03.37	.1386	0.9757				
0.269	06.43	-295.5	1.913	05.80	02.77	.1271	0.8692	12	030	045	15
0.669	06.76	-295.9	1.780	06.08	02.96	.1426	0.7950				
0.869	07.16	-360.0	1.921	00.00	07.16	.1259	0.8716				
1.269	08.27	-360.0	1.966	00.00	08.27	.1259	0.9342				
1.469	10.11	-304.9	1.929	08.31	05.82	.1330	0.9322				
1.869	10.36	-306.8	1.964	08.32	06.25	.1328	0.9825				
2.069	10.09	-304.1	1.924	08.38	05.69	.1395	0.9700				
0.269	09.56	-295.8	1.881	08.62	04.19	.1250	0.8132	16	030	045	15
0.669	09.31	-303.7	1.823	07.76	05.19	.1417	0.8431				
0.869	10.52	-315.0	1.877	07.48	07.48	.1339	0.8658				
1.269	11.00	-360.0	1.952	00.00	11.00	.1302	0.9455				
1.469	14.13	-306.2	1.910	11.48	08.45	.1357	0.9234				
1.869	13.74	-311.2	1.940	10.42	09.14	.1352	0.9641				
2.069	15.04	-311.3	1.957	11.41	10.05	.1323	0.9684				
0.269	12.91	-296.0	1.860	11.64	05.73	.1272	0.8012	20	030	045	15
0.669	13.19	-301.3	1.802	11.32	06.94	.1449	0.8352				
0.869	14.04	-309.3	1.857	10.95	09.00	.1353	0.8483				
1.269	16.29	-360.0	2.042	00.00	16.29	.1148	0.9589				
1.469	17.98	-307.5	1.924	14.43	11.17	.1325	0.9217				
1.869	18.13	-311.9	2.000	13.69	12.33	.1259	0.9853				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
2.069	17.98	-308.5	1.949	14.25	11.42	.1341	0.9696				
0.269	16.10	-294.8	1.897	14.68	06.90	.1253	0.8365	23	030	045	15
0.669	16.34	-303.5	1.797	13.73	09.19	.1463	0.8365				
0.869	17.58	-309.9	1.859	13.66	11.48	.1353	0.8513				
1.269	18.68	-360.0	1.968	00.00	18.68	.1232	0.9177				
1.469	20.59	-306.8	1.885	16.74	12.68	.1381	0.9043				
1.869	20.61	-360.0	1.894	00.00	20.61	.1404	0.9321				
2.069	19.93	-310.9	1.867	15.32	13.35	.1475	0.9391				
2.069	00.56	-323.0	2.171	00.33	00.44	.1131	1.1554	00	045	045	15
0.269	05.34	-270.0	1.829	05.34	00.00	.1210	0.7266	08	045	045	15
0.669	05.30	-272.4	1.954	05.29	00.22	.1194	0.8699				
0.869	04.42	-302.3	1.895	03.73	02.36	.1247	0.8294				
1.269	04.45	-297.8	1.926	03.93	02.07	.1253	0.8744				
1.469	06.05	-277.7	1.883	05.99	00.81	.1328	0.8670				
1.869	09.00	-282.2	1.905	08.80	01.91	.1383	0.9340				
2.069	08.31	-225.0	1.909	05.89	-05.89	.1429	0.9710				
0.269	08.33	-270.0	1.914	08.33	00.00	.1193	0.8171	12	045	045	15
0.669	07.10	-297.4	1.914	06.31	03.28	.1218	0.8344				
0.869	06.90	-297.3	1.861	06.13	03.17	.1257	0.7936				
1.269	09.14	-274.3	1.927	09.11	00.69	.1279	0.8936				
1.469	10.22	-285.3	1.883	09.86	02.72	.1394	0.9100				
1.869	12.97	-289.1	1.898	12.27	04.31	.1424	0.9507				
2.069	12.54	-281.3	1.899	12.30	02.49	.1442	0.9647				
0.269	12.34	-279.1	1.921	12.18	01.98	.1162	0.8044	16	045	045	15
0.669	10.65	-286.9	1.839	10.20	03.12	.1272	0.7757				
0.869	11.70	-293.6	1.890	10.74	04.74	.1263	0.8332				
1.269	12.75	-281.1	1.928	12.51	02.49	.1313	0.9187				
1.469	13.83	-287.3	1.882	13.22	04.18	.1435	0.9353				
1.869	16.91	-293.3	1.927	15.60	06.85	.1401	0.9785				
2.069	15.90	-287.4	1.929	15.20	04.86	.1396	0.9778				
0.269	16.24	-278.7	1.950	16.06	02.52	.1125	0.8145	20	045	045	15
0.669	15.11	-286.1	1.839	14.54	04.28	.1346	0.8212				
0.869	15.34	-292.9	1.860	14.18	06.09	.1331	0.8386				
1.269	16.31	-288.5	1.932	15.50	05.30	.1313	0.9244				
1.469	20.81	-295.7	1.947	18.90	09.35	.1278	0.9214				
1.869	20.58	-296.9	1.915	18.51	09.64	.1371	0.9402				
2.069	19.93	-293.3	1.919	18.41	08.16	.1390	0.9590				
0.269	19.55	-280.2	1.960	19.26	03.59	.1135	0.8350	23	045	045	15
0.669	18.55	-289.2	1.896	17.58	06.29	.1291	0.8595				
0.869	19.77	-292.5	1.895	18.37	07.83	.1259	0.8370				
1.269	19.82	-293.0	1.919	18.35	08.01	.1298	0.8957				
1.469	22.89	-295.3	1.900	20.89	10.22	.1363	0.9132				
1.869	22.21	-296.7	1.850	20.03	10.39	.1482	0.9192				
2.069	21.43	-292.5	1.861	19.93	08.54	.1494	0.9425				
0.669	01.17	-063.3	1.925	-01.04	00.52	.1261	0.8783	00	060	045	15
1.269	02.53	-315.0	2.085	01.78	01.78	.1086	0.9701				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA
FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{P_1}{P_{t,o}}$	$\frac{P_{t,1}}{P_{t,e}}$	α_i	θ	ϕ	RUN
1.869	03.22	-315.0	2.062	02.27	02.27	.1133	0.9763				
0.269	05.25	-322.6	1.959	03.19	04.17	.1107	0.8128	08	060	045	15
0.469	06.42	-332.4	1.820	02.98	05.69	.1131	0.6699				
0.669	11.86	-299.2	1.875	10.38	05.85	.1178	0.7592				
0.869	10.31	-304.7	1.802	08.50	05.91	.1201	0.6923				
1.069	09.02	-306.7	1.904	07.25	05.41	.1194	0.8050				
1.269	08.08	-328.6	2.057	04.23	06.90	.1130	0.9657				
1.469	12.17	000.0	2.041	00.00	12.17	.1106	0.9219				
1.669	17.32	-315.0	2.494	12.43	12.43	.0734	1.2443				
1.869	16.68	-298.8	2.034	14.71	08.21	.1208	0.9967				
2.069	12.59	-289.2	1.931	11.91	04.20	.1385	0.9740				
0.269	06.23	-246.3	1.792	05.70	-02.51	.1057	0.6001	12	060	045	15
0.469	07.42	-253.9	1.707	07.13	-02.06	.1138	0.5674				
0.669	10.33	-274.4	1.852	10.30	00.80	.1183	0.7358				
0.869	08.86	-280.5	1.825	08.71	01.62	.1208	0.7210				
1.069	07.30	-265.0	1.926	07.27	-00.63	.1190	0.8303				
1.269	05.94	-261.6	2.081	05.87	-00.87	.1115	0.9902				
1.469	16.92	-235.0	1.910	13.99	-09.89	.1114	0.7577				
1.669	18.78	-246.5	1.986	17.31	-07.72	.1163	0.8897				
1.869	19.43	-225.0	1.951	14.00	-14.00	.1260	0.9141				
2.069	15.92	-225.0	1.901	11.40	-11.40	.1440	0.9661				
0.269	14.17	-272.0	1.926	14.16	00.50	.1107	0.7721	16	060	045	15
0.469	10.97	-270.8	1.867	10.96	00.15	.1176	0.7490				
0.669	09.45	-292.7	1.811	09.73	03.67	.1233	0.7201				
0.869	10.12	-225.0	1.790	07.19	-07.19	.1261	0.7137				
1.069	13.28	-246.6	1.770	12.22	-05.35	.1293	0.7098				
1.269	15.61	-248.4	1.791	14.56	-05.87	.1273	0.7213				
1.469	20.27	-246.6	1.823	18.72	-08.34	.1264	0.7526				
1.669	21.36	-253.7	1.856	20.57	-06.26	.1330	0.8332				
1.869	22.45	-225.0	1.966	16.28	-16.28	.1275	0.9458				
2.069	20.54	-270.0	1.925	20.54	00.00	.1373	0.9559				
0.269	17.24	-225.0	2.004	12.37	-12.37	.1026	0.8078	20	060	045	15
0.469	15.83	-225.0	1.863	11.33	-11.33	.1224	0.7743				
0.669	14.57	-225.0	1.867	10.41	-10.41	.1230	0.7835				
0.869	14.49	-269.2	1.844	14.48	-00.20	.1270	0.7806				
1.069	17.12	-253.4	1.803	16.44	-05.02	.1359	0.7846				
1.269	19.04	-258.7	1.818	18.69	-03.86	.1377	0.8137				
1.469	21.10	-259.7	1.837	20.78	-03.94	.1390	0.8451				
1.669	21.78	-264.1	1.849	21.67	-02.35	.1430	0.8854				
1.869	23.24	-225.0	1.920	16.89	-16.89	.1385	0.9570				
2.069	23.76	-225.0	1.928	17.29	-17.29	.1332	0.9317				
0.269	21.07	-225.0	2.030	15.23	-15.23	.1008	0.8265	23	060	045	15
0.469	19.69	-225.0	1.915	14.20	-14.20	.1156	0.7922				
0.669	17.61	-225.0	1.890	12.65	-12.65	.1247	0.8228				
0.869	19.16	-265.5	1.893	19.10	-01.56	.1227	0.8137				
1.069	20.81	-256.0	1.816	20.24	-05.25	.1369	0.8057				
1.269	21.84	-267.3	1.831	21.81	-01.08	.1394	0.8398				
1.469	22.17	-264.3	1.814	22.07	-02.31	.1464	0.8599				
1.669	24.66	-225.0	1.932	17.98	-17.98	.1286	0.9051				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
1.869	26.78	-280.8	1.938	26.37	05.40	.1302	0.9254				
2.069	26.31	-225.0	1.902	19.27	-19.27	.1362	0.9154				
0.269	08.60	-313.2	2.053	06.29	05.91	.1064	0.9037	08	070	045	15
0.869	12.29	-303.1	2.006	10.34	06.78	.1164	0.9192				
1.469	12.86	-306.7	1.996	10.37	07.76	.1185	0.9215				
2.069	11.60	-288.7	1.946	11.00	03.76	.1318	0.9480				
0.269	06.54	-305.8	1.834	05.31	03.83	.1040	0.6293	12	070	045	15
0.869	13.87	-306.6	1.996	11.21	08.37	.1131	0.8800				
1.469	20.45	-339.0	2.100	07.61	19.19	.0938	0.8575				
2.069	18.20	-278.1	1.979	18.03	02.65	.1325	1.0037				
0.269	14.66	-225.0	1.979	10.48	-10.48	.1013	0.7669	16	070	045	15
0.869	10.02	-298.5	1.998	08.82	04.81	.1141	0.8904				
1.469	33.63	-233.9	1.746	28.25	-21.40	.0883	0.4685				
2.069	21.98	-270.0	1.898	21.98	00.00	.1459	0.9748				
0.269	17.81	-225.0	2.050	12.79	-12.79	.0961	0.8126	20	070	045	15
0.869	11.10	-270.0	1.912	11.10	00.00	.1175	0.8020				
1.469	28.95	-241.6	1.896	25.94	-14.74	.1126	0.7502				
2.069	28.67	-265.3	1.914	28.58	-02.56	.1354	0.9273				
0.269	21.38	-225.0	2.071	15.47	-15.47	.0954	0.8341	23	070	045	15
0.869	17.45	-243.6	1.853	15.72	-07.95	.1178	0.7339				
1.469	29.74	-246.3	1.951	27.61	-12.93	.1168	0.8471				
2.069	30.18	-270.0	1.966	30.18	00.00	.1255	0.9314				
0.269	10.02	-301.2	2.093	08.59	05.22	.1027	0.9286	08	075	045	15
0.469	10.75	-303.9	2.045	08.95	06.04	.1119	0.9390				
0.669	11.75	-301.4	1.970	10.06	06.18	.1152	0.8601				
0.869	12.29	-299.5	1.895	10.73	06.12	.1180	0.7847				
1.069	12.08	-281.4	1.838	11.84	02.42	.1176	0.7738				
1.269	11.50	-299.1	1.991	10.08	05.65	.1058	0.8167				
1.469	13.72	-300.0	1.909	11.93	06.96	.1159	0.7876				
1.669	11.82	-295.4	2.046	10.70	05.12	.1158	0.9733				
1.869	12.70	-296.9	2.014	11.36	05.82	.1220	0.9756				
2.069	11.95	-284.9	1.991	11.55	03.11	.1269	0.9795				
0.269	10.49	-360.0	1.849	00.00	10.49	.1041	0.6446	12	075	045	15
0.469	15.58	-305.3	1.796	12.81	09.15	.1061	0.6058				
0.669	15.55	-307.7	2.001	12.41	09.65	.1067	0.8365				
0.869	15.70	-302.4	2.012	13.35	08.56	.1122	0.8939				
1.069	14.14	-301.9	2.007	12.07	07.58	.1147	0.9075				
1.469	18.18	-307.1	2.046	14.67	11.20	.1133	0.9522				
1.269	13.79	-315.0	2.082	09.84	09.84	.1093	0.9713				
1.669	18.88	-297.2	2.097	16.91	08.88	.1109	1.0101				
1.869	19.55	-294.0	2.032	17.97	08.21	.1206	0.9923				
2.069	17.46	-278.7	2.012	17.27	02.72	.1259	1.0032				
0.269	14.96	-270.0	1.996	14.96	00.00	.0964	0.7496	16	075	045	15
0.469	13.25	-270.8	1.884	13.24	00.18	.1079	0.7049				
0.669	13.23	-298.7	1.859	11.65	06.44	.1146	0.7210				
0.869	12.91	-300.9	1.957	11.12	06.71	.1167	0.8545				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.069	07.31	-299.6	1.903	06.36	03.62	.1128	0.7591				
1.269	02.63	-030.1	2.260	-01.31	02.27	.0750	0.8816				
1.469	05.77	-335.2	3.188	02.42	05.24	.0197	0.9588				
1.669	34.38	-275.0	2.104	34.27	03.41	.0997	0.9170				
1.869	27.48	-284.0	1.980	26.77	07.17	.1245	0.9438				
2.069	22.50	-225.0	1.929	16.32	-16.32	.1390	0.9740				
0.269	18.38	-225.0	2.072	13.22	-13.22	.0926	0.8105	20	075	045	15
0.469	15.74	-225.0	1.871	11.27	-11.27	.1092	0.7000				
0.669	13.81	-275.2	1.836	13.75	01.27	.1124	0.6824				
0.869	11.57	-274.8	1.984	11.53	00.98	.1145	0.8740				
1.069	02.15	-328.1	1.531	01.13	01.82	.1601	0.6151				
1.269	20.85	-232.9	1.800	16.89	-12.93	.1065	0.6118				
1.469	36.32	-238.7	1.677	32.13	-20.90	.1150	0.5486				
1.869	35.35	-270.0	2.105	35.35	00.00	.1031	0.9506				
2.069	32.81	-264.8	1.997	32.70	-03.34	.1219	0.9493				
0.269	21.64	-270.0	2.103	21.64	00.00	.0912	0.8380	23	075	045	15
0.469	17.90	-225.0	1.917	12.86	-12.86	.1089	0.7494				
0.669	16.02	-270.0	1.914	16.02	00.00	.1095	0.7501				
0.869	12.55	-268.3	1.980	12.54	-00.37	.1118	0.8480				
1.069	16.72	-241.9	2.034	14.84	-08.05	.1062	0.8764				
1.269	24.21	-242.1	2.040	21.67	-11.88	.1065	0.8868				
1.469	32.27	-239.2	1.951	28.47	-17.91	.1080	0.7830				
1.669	35.44	-244.9	1.859	32.80	-16.79	.1249	0.7855				
1.869	35.74	-269.5	2.137	35.73	-00.36	.1041	1.0088				
2.069	33.96	-259.5	1.935	33.51	-06.99	.1310	0.9266				
0.269	11.15	-297.5	2.088	09.91	05.20	.1009	0.9059	08	080	045	15
0.869	11.70	-297.7	2.016	10.39	05.49	.1148	0.9211				
1.469	13.83	-295.7	2.063	12.50	06.09	.1089	0.9398				
2.069	12.19	-278.4	2.021	12.06	01.80	.1218	0.9842				
0.269	12.74	-308.0	1.937	10.10	07.92	.1012	0.7177	12	080	045	15
0.869	16.08	-299.6	2.059	14.07	08.10	.1063	0.9112				
1.469	18.14	-298.4	2.077	16.07	08.85	.1101	0.9712				
2.069	16.99	-273.4	2.030	16.96	01.03	.1199	0.9828				
0.269	15.88	-270.0	1.981	15.88	00.00	.0927	0.7040	16	080	045	15
0.269	15.88	-270.0	1.995	15.88	00.00	.0915	0.7103				
0.869	14.85	-301.7	2.028	12.71	07.93	.1132	0.9253				
0.869	14.74	-301.9	2.023	12.59	07.91	.1137	0.9223				
1.469	27.27	-311.9	1.956	20.99	18.99	.1046	0.7640				
1.469	27.32	-312.5	1.957	20.85	19.23	.1045	0.7647				
2.069	22.42	-225.0	1.951	16.26	-16.26	.1328	0.9628				
2.069	22.42	-225.0	1.959	16.26	-16.26	.1318	0.9676				
0.269	19.01	-225.0	2.091	13.69	-13.69	.0888	0.8010	20	080	045	15
0.869	12.08	-290.8	2.075	11.31	04.34	.1092	0.9600				
2.069	27.94	-262.2	1.884	27.72	-04.11	.1486	0.9712				
0.269	22.06	-270.0	2.116	22.06	00.00	.0880	0.8247	23	080	045	15
0.869	12.45	-270.0	2.068	12.45	00.00	.1071	0.9315				
2.069	37.09	-258.9	1.988	36.57	-08.28	.1210	0.9293				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
0.269	11.69	-294.3	2.112	10.67	04.86	.0981	0.9140	08	085	045	15
0.869	11.91	-292.8	2.025	11.00	04.67	.1135	0.9239				
1.469	14.59	-291.3	2.096	13.63	05.40	.1043	0.9473				
2.069	12.30	-272.0	2.040	12.29	00.43	.1171	0.9749				
0.269	13.59	-301.4	2.013	11.65	07.17	.0990	0.7902	12	085	045	15
0.869	16.41	-296.0	2.059	14.82	07.35	.1044	0.8954				
1.469	18.62	-286.1	1.912	17.93	05.33	.1104	0.7534				
2.069	16.68	-270.6	2.057	16.67	00.18	.1165	0.9958				
0.269	17.00	-270.0	1.980	17.00	00.00	.0859	0.6516	16	085	045	15
0.869	17.49	-299.8	1.996	15.29	08.90	.1105	0.8598				
1.469	23.08	-302.0	2.060	19.86	12.72	.1076	0.9244				
2.069	22.17	-225.0	1.974	16.07	-16.07	.1265	0.9505				
0.269	20.03	-225.0	2.117	14.45	-14.45	.0853	0.8013	20	085	045	15
0.869	13.36	-295.9	2.082	12.05	05.92	.1073	0.9537				
1.469	15.00	-333.?	1.716	06.88	13.45	.0902	0.4563				
2.069	28.30	-268.5	1.899	28.29	-00.80	.1424	0.9523				
0.269	22.63	-270.0	2.132	22.63	00.00	.0850	0.8170	23	085	045	15
0.869	12.17	-225.0	2.083	08.67	-08.67	.1041	0.9274				
2.069	32.41	-261.4	2.055	32.11	-05.42	.1253	1.0677				
0.269	-00.10	-244.3	1.965	00.00	00.00	.1299	0.9626	00	090	045	15
0.469	00.18	-234.9	1.896	00.14	-00.10	.1368	0.9111				
0.869	00.11	-338.8	1.883	00.04	00.10	.1350	0.8814				
1.069	00.36	-225.0	1.835	00.25	-00.25	.1352	0.8193				
1.469	00.59	-149.9	1.878	-00.29	-00.51	.1424	0.9221				
1.669	01.69	-135.0	1.848	-01.19	-01.19	.1477	0.9137				
2.069	06.11	-180.0	1.784	00.00	-06.11	.1684	0.9441				
0.269	11.95	-289.7	2.140	11.26	04.08	.0954	0.9289	08	090	045	15
0.469	12.88	-287.3	2.064	12.31	03.89	.1064	0.9197				
0.669	10.61	-292.0	2.011	09.85	04.01	.1131	0.9002				
0.869	10.34	-288.3	1.972	09.82	03.27	.1180	0.8839				
1.069	10.58	-270.0	1.935	10.58	00.00	.1224	0.8658				
1.269	10.62	-270.0	2.008	10.62	00.00	.1149	0.9108				
1.469	12.90	-270.0	1.988	12.90	00.00	.1136	0.8727				
1.669	13.56	-270.0	2.130	13.56	00.00	.1018	0.9758				
1.869	14.49	-281.3	2.115	14.22	02.89	.1055	0.9876				
2.069	12.76	-270.0	2.070	12.76	00.00	.1126	0.9830				
0.269	14.39	-296.7	2.114	12.91	06.57	.0952	0.8898	12	090	045	15
0.469	16.36	-291.3	2.096	15.29	06.08	.0981	0.8920				
0.669	16.95	-289.4	2.039	16.03	05.78	.1022	0.8498				
0.869	14.78	-290.2	2.022	13.90	05.20	.1058	0.8566				
1.069	15.32	-272.3	2.077	15.30	00.63	.1040	0.9179				
1.269	16.68	-281.7	2.132	16.35	03.47	.0979	0.9412				
1.469	19.00	-283.5	2.125	18.51	04.59	.1001	0.9520				
1.669	17.56	-270.0	2.127	17.56	00.00	.1010	0.9640				
1.869	18.59	-281.9	2.137	18.21	03.96	.1025	0.9934				
2.069	16.91	-270.0	2.093	16.91	00.00	.1096	0.9914				
0.269	18.34	-270.0	1.936	18.34	00.00	.0826	0.5855	16	090	045	15

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	20.59	-286.8	1.944	19.78	06.19	.0913	0.6547				
0.669	19.65	-289.0	2.074	18.65	06.63	.0985	0.8648				
0.869	18.87	-293.4	2.036	17.41	07.73	.1045	0.8655				
1.069	19.09	-290.2	2.105	17.99	06.81	.1040	0.9588				
1.269	19.20	-296.4	2.135	17.32	08.80	.0986	0.9527				
1.469	22.28	-292.4	2.076	20.74	08.87	.1043	0.9188				
1.669	22.63	-276.4	2.094	22.50	02.66	.1051	0.9523				
1.869	23.67	-281.4	2.075	23.25	04.95	.1097	0.9641				
2.069	21.67	-270.0	2.021	21.67	00.00	.1176	0.9506				
0.269	20.95	-270.0	2.157	20.95	00.00	.0812	0.8118	20	090	045	15
0.469	18.41	-271.1	2.018	18.40	00.36	.0882	0.7097				
0.669	18.13	-285.0	2.102	17.55	04.84	.0932	0.8552				
0.869	16.47	-295.9	2.102	14.89	07.35	.1025	0.9402				
1.069	15.95	-301.4	2.006	13.70	08.46	.1048	0.8275				
1.269	17.75	-320.9	2.101	11.41	13.95	.0874	0.8004				
1.469	27.98	-303.1	2.030	23.99	16.17	.0986	0.8081				
1.669	29.33	-282.0	1.948	28.79	06.66	.1151	0.8311				
1.869	30.26	-278.6	2.097	29.97	04.98	.1112	1.0123				
2.069	27.96	-270.0	1.964	27.96	00.00	.1294	0.9577				
0.269	23.14	-270.0	2.157	23.14	00.00	.0809	0.8090	23	090	045	15
0.469	20.34	-270.0	2.034	20.34	00.00	.0891	0.7354				
0.669	17.00	-272.1	2.088	16.98	00.64	.0925	0.8299				
0.869	13.64	-280.5	2.126	13.42	02.53	.0983	0.9360				
1.069	09.11	-298.9	2.124	07.99	04.43	.0891	0.8460				
1.269	10.23	-336.1	2.369	04.18	09.36	.0584	0.8133				
1.469	07.24	-310.5	2.188	05.51	04.71	.0325	0.3408				
1.869	35.40	-270.0	2.022	35.40	00.00	.1150	0.9315				
2.069	33.01	-257.9	1.916	32.42	-07.75	.1426	0.9790				
0.669	10.68	-277.9	2.010	10.58	01.48	.1165	0.9259	08	100	045	15
1.269	10.13	-270.0	2.001	10.13	00.00	.1216	0.9529				
1.869	11.51	-256.0	1.912	11.17	-02.82	.1407	0.9608				
0.669	15.92	-277.4	2.085	15.79	02.10	.0992	0.8867	12	100	045	15
1.269	14.97	-270.0	1.959	14.97	00.00	.1163	0.8538				
1.869	19.35	-270.0	2.208	19.35	00.00	.0919	0.9957				
0.669	20.07	-274.5	2.105	20.01	01.64	.0913	0.8418	16	100	045	15
1.269	19.42	-270.0	1.962	19.42	00.00	.0917	0.6764				
1.869	23.38	-270.0	2.182	23.38	00.00	.0958	0.9954				
0.669	20.17	-270.7	2.141	20.16	00.25	.0856	0.8352	20	100	045	15
1.269	21.60	-285.6	2.177	20.87	06.07	.0893	0.9206				
1.869	27.40	-270.0	2.134	27.40	00.00	.1013	0.9769				
0.669	19.71	-270.0	2.137	19.71	00.00	.0847	0.8203	23	100	045	15
1.269	20.26	-300.6	2.159	17.62	10.64	.0795	0.7975				
1.869	32.10	-270.0	2.121	32.10	00.00	.1059	1.0002				
0.469	11.30	-270.3	1.979	11.30	00.06	.1207	0.9141	08	105	045	15
0.669	10.40	-270.0	1.981	10.40	00.00	.1202	0.9134				
1.069	11.64	-252.4	1.988	11.10	-03.56	.1218	0.9353				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
1.269	11.39	-259.4	1.995	11.20	-02.12	.1216	0.9439				
1.669	11.42	-243.4	1.901	10.23	-05.16	.1346	0.9034				
1.869	11.47	-247.9	1.913	10.64	-04.36	.1376	0.9406				
0.469	15.65	-271.4	2.086	15.64	00.39	.0979	0.8762	12	105	045	15
0.669	14.60	-270.0	2.082	14.60	00.00	.1021	0.9080				
1.069	15.37	-258.8	2.014	15.09	-03.05	.1129	0.9026				
1.269	15.23	-264.4	2.060	15.16	-01.52	.1110	0.9540				
1.669	15.64	-247.8	1.976	14.53	-06.03	.1245	0.9387				
1.869	16.11	-256.0	2.030	15.65	-03.99	.1225	1.0037				
0.469	21.70	-275.6	2.154	21.60	02.22	.0827	0.8230	16	105	045	15
0.669	19.19	-270.0	2.116	19.19	00.00	.0887	0.8315				
1.069	19.45	-261.1	2.096	19.23	-03.12	.0963	0.8743				
1.269	19.61	-270.0	2.158	19.61	00.00	.0926	0.9268				
1.669	24.02	-256.7	2.158	23.44	-05.85	.0926	0.9276				
1.869	24.41	-270.0	2.230	24.41	00.00	.0885	0.9922				
0.469	23.82	-270.0	2.072	23.82	00.00	.0778	0.6812	20	105	045	15
0.669	21.90	-270.0	2.134	21.90	00.00	.0837	0.8065				
1.069	22.60	-270.0	2.108	22.60	00.00	.0935	0.8662				
1.269	21.87	-270.0	2.170	21.87	00.00	.0871	0.8886				
1.669	27.41	-261.7	2.163	27.16	-04.28	.0938	0.9467				
1.869	28.17	-270.0	2.173	28.17	00.00	.0951	0.9752				
0.469	23.52	-270.0	2.135	23.52	00.00	.0756	0.7309	23	105	045	15
0.669	22.24	-270.0	2.128	22.24	00.00	.0832	0.7953				
1.069	21.15	-270.0	2.215	21.15	00.00	.0864	0.9464				
1.269	23.17	-275.2	2.231	23.08	02.22	.0836	0.9386				
1.669	29.07	-270.0	2.131	29.07	00.00	.0984	0.9451				
1.869	31.55	-270.0	2.275	31.55	00.00	.0908	1.0918				
0.669	10.12	-270.0	1.991	10.12	00.00	.1207	0.9316	08	110	045	15
1.269	10.97	-251.8	1.994	10.43	-03.46	.1204	0.9334				
1.869	11.43	-244.9	1.932	10.37	-04.90	.1338	0.9423				
0.669	14.80	-270.0	2.089	14.80	00.00	.1016	0.9129	12	110	045	15
1.269	15.83	-256.3	2.077	15.40	-03.84	.1087	0.9588				
1.869	17.43	-250.4	2.052	16.47	-06.01	.1178	0.9994				
0.669	19.51	-270.0	2.179	19.51	00.00	.0851	0.8812	16	110	045	15
0.669	19.76	-270.0	2.203	19.76	00.00	.0835	0.8966				
1.269	20.21	-259.4	2.154	19.89	-03.87	.0932	0.9270				
1.269	20.40	-259.0	2.177	20.05	-04.05	.0913	0.9426				
1.869	23.91	-254.3	1.933	23.11	-06.84	.1124	0.7922				
1.869	24.64	-254.0	1.957	23.79	-07.20	.1101	0.8059				
0.669	23.70	-270.0	2.138	23.70	00.00	.0811	0.7870	20	110	045	15
1.269	25.06	-259.5	2.240	24.69	-04.87	.0806	0.9173				
1.869	29.13	-267.7	2.246	29.11	-01.28	.0884	1.0163				
0.669	24.38	-270.0	2.114	24.38	00.00	.0814	0.7611	23	110	045	15
1.269	25.18	-270.0	2.226	25.18	00.00	.0842	0.9379				
1.869	31.84	-269.5	2.296	31.83	-00.31	.0867	1.0773				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.669	10.72	-266.9	1.983	10.70	-00.58	.1225	0.9332	08	115	045	15
1.269	11.02	-246.2	1.984	10.10	-04.49	.1200	0.9158				
1.869	11.30	-242.0	1.945	10.00	-05.35	.1301	0.9346				
0.669	14.39	-269.5	2.055	14.38	-00.12	.1062	0.9054	12	115	045	15
1.269	15.84	-250.6	2.067	14.98	-05.38	.1095	0.9508				
1.869	16.76	-246.8	2.042	15.47	-06.76	.1147	0.9582				
0.669	19.94	-270.0	2.169	19.94	00.00	.0837	0.8523	16	115	045	15
1.269	20.76	-252.5	2.150	19.87	-06.50	.0924	0.9137				
1.869	22.86	-251.2	2.128	21.75	-07.73	.1029	0.9832				
0.669	25.72	-265.0	2.158	25.63	-02.40	.0783	0.7838	20	115	045	15
1.269	26.88	-254.2	2.146	26.00	-07.85	.0807	0.7930				
1.869	29.57	-259.7	2.246	29.17	-05.79	.0844	0.9706				
0.669	26.93	-266.8	2.109	26.89	-01.62	.0794	0.7361	23	115	045	15
1.269	28.15	-264.3	2.238	28.03	-03.04	.0824	0.9360				
1.869	30.35	-262.5	2.256	30.13	-04.37	.0844	0.9848				
0.669	-00.59	-360.0	1.992	00.00	00.00	.1195	0.9231	00	120	045	15
1.269	01.41	-030.2	2.051	-00.70	01.21	.1126	0.9534				
1.869	01.54	-030.0	2.054	-00.77	01.33	.1135	0.9658				
0.469	10.69	-260.7	2.052	10.55	-01.74	.1140	0.9668	08	120	045	15
0.669	10.54	-258.7	1.956	10.34	-02.08	.1235	0.9026				
1.069	11.15	-239.5	1.943	09.63	-05.71	.1268	0.9080				
1.269	10.33	-242.1	1.974	09.15	-04.87	.1215	0.9130				
1.669	11.04	-237.1	1.941	09.30	-06.04	.1266	0.9039				
1.869	10.87	-239.8	1.950	09.42	-05.51	.1283	0.9286				
0.469	15.97	-261.4	2.040	15.79	-02.45	.1081	0.9005	12	120	045	15
0.669	15.90	-260.5	2.049	15.69	-02.69	.1095	0.9248				
1.069	16.53	-243.2	2.065	14.83	-07.62	.1071	0.9276				
1.269	15.62	-246.2	2.090	14.34	-06.43	.1061	0.9551				
1.669	16.40	-238.6	2.035	14.10	-08.71	.1129	0.9332				
1.869	15.87	-242.9	2.027	14.20	-07.37	.1152	0.9403				
0.469	18.10	-257.3	2.012	17.68	-04.11	.0969	0.7723	16	120	045	15
0.669	19.51	-257.9	2.054	19.10	-04.24	.0919	0.7822				
1.069	20.35	-243.9	2.125	18.42	-09.26	.0924	0.8793				
1.269	20.15	-247.9	2.126	18.77	-07.86	.0942	0.8972				
1.669	21.74	-240.4	1.992	19.12	-11.14	.1141	0.8810				
1.869	21.55	-245.4	2.092	19.75	-09.33	.1077	0.9733				
0.469	24.62	-239.6	1.770	21.56	-13.05	.1065	0.5845	20	120	045	15
0.669	26.11	-260.3	2.127	25.78	-04.72	.0780	0.7443				
1.069	25.69	-245.6	2.162	23.65	-11.23	.0817	0.8230				
1.269	26.91	-250.2	2.177	25.52	-09.75	.0808	0.8334				
1.669	27.83	-241.9	1.977	24.97	-13.96	.1024	0.7734				
1.869	28.18	-247.8	2.018	26.38	-11.44	.0980	0.7892				
0.469	24.57	-236.5	2.047	20.86	-14.16	.0901	0.7586	23	120	045	15
0.669	26.88	-245.4	1.941	24.74	-11.91	.0906	0.6465				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
1.069	29.75	-245.6	2.130	27.49	-13.28	.0794	0.7613				
1.269	28.86	-252.2	2.234	27.68	-09.56	.0783	0.8838				
1.669	33.45	-245.3	2.112	30.97	-15.43	.0850	0.7923				
1.869	29.57	-256.5	2.261	28.88	-07.54	.0811	0.9540				
0.469	10.04	-246.0	2.088	09.18	-04.11	.1110	0.9959	08	130	045	15
1.069	10.32	-233.4	1.916	08.31	-06.19	.1283	0.8812				
1.669	10.34	-225.0	1.929	07.35	-07.35	.1234	0.8648				
0.469	14.25	-247.1	1.997	13.16	-05.64	.1093	0.8512	12	130	045	15
1.069	15.53	-235.6	1.968	12.91	-08.92	.1145	0.8525				
1.669	14.81	-230.9	1.978	11.59	-09.46	.1157	0.8751				
0.469	10.76	-238.0	1.815	09.15	-05.75	.1064	0.6259	16	130	045	15
1.069	19.38	-236.4	2.116	16.33	-11.01	.0940	0.8816				
1.669	19.94	-236.3	2.114	16.79	-11.38	.0995	0.9304				
0.469	19.75	-245.6	1.853	18.10	-08.43	.1074	0.6693	20	130	045	15
1.069	26.79	-225.1	1.822	19.67	-19.61	.1144	0.6797				
1.669	24.95	-238.0	2.110	21.53	-13.85	.0928	0.8618				
0.469	21.79	-236.6	2.071	18.45	-12.41	.0866	0.7569	23	130	045	15
1.069	30.37	-229.4	1.899	23.98	-20.87	.1000	0.6687				
1.669	30.59	-239.2	2.167	26.92	-16.84	.0798	0.8105				
0.469	10.01	-240.8	2.050	08.75	-04.92	.1125	0.9513	08	135	045	15
1.069	10.24	-237.1	1.876	08.62	-05.60	.1272	0.8213				
1.669	07.83	-225.0	1.977	05.55	-05.55	.1180	0.89 9				
0.469	13.43	-245.1	1.927	12.22	-05.74	.1167	0.8151	12	135	045	15
1.069	15.49	-232.0	1.953	12.31	-09.68	.1177	0.8561				
1.669	11.20	-221.6	1.994	07.48	-08.42	.1123	0.8705				
0.469	11.03	-212.5	1.536	05.97	-09.33	.1154	0.4465	16	135	045	15
1.069	19.61	-225.0	2.031	14.14	-14.14	.1036	0.8507				
1.669	18.03	-234.8	2.122	14.89	-10.62	.0961	0.9099				
0.469	17.12	-244.2	1.866	15.49	-07.63	.1067	0.6785	20	135	045	15
1.069	24.70	-221.8	1.942	17.04	-18.92	.1177	0.8417				
1.669	25.55	-235.8	2.090	21.57	-15.04	.0920	0.8282				
0.469	18.08	-241.7	1.911	16.03	-08.79	.0906	0.6176	23	135	045	15
1.069	26.85	-222.4	1.985	18.84	-20.49	.1052	0.8042				
1.669	30.00	-230.0	1.903	23.85	-20.36	.1032	0.6945				
0.469	10.18	-236.4	2.039	08.50	-05.67	.1149	0.9552	08	140	045	15
1.069	06.03	-229.5	2.001	04.59	-03.92	.1147	0.8991				
1.669	08.17	-239.2	2.016	07.03	-04.20	.1133	0.9089				
0.469	12.17	-241.9	1.852	10.77	-05.80	.1218	0.7579	12	140	045	15
1.069	17.33	-225.0	1.913	12.44	-12.44	.1195	0.8173				
1.669	06.81	-209.1	1.952	03.32	-05.95	.1161	0.8431				
0.469	07.57	-212.2	1.809	04.05	-06.41	.0887	0.5165	16	140	045	15

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	ϕ	RUN
0.469	08.74	-212.9	1.526	04.77	-07.35	.1189	0.4534				
1.069	22.48	-210.2	1.589	11.75	-19.67	.1498	0.6262				
1.069	22.79	-210.4	1.583	12.00	-19.92	.1509	0.6255				
1.669	17.88	-235.1	2.000	14.82	-10.45	.1032	0.8070				
1.669	21.12	-234.6	2.024	17.47	-12.61	.1012	0.8223				
0.469	14.09	-238.9	1.810	12.12	-07.38	.1086	0.6338	20	140	045	15
1.069	22.02	-219.9	1.913	14.54	-17.23	.1144	0.7826				
1.669	28.82	-220.3	1.757	19.58	-22.76	.1289	0.6939				
0.469	14.95	-243.9	1.865	13.48	-06.70	.0973	0.6173	23	140	045	15
1.069	27.13	-216.8	1.883	17.06	-22.30	.1100	0.7185				
1.669	30.27	-222.6	1.841	21.55	-23.24	.1106	0.6764				
0.469	10.91	-225.0	1.971	07.76	-07.76	.1222	0.9142	08	145	045	15
1.069	08.44	-225.0	1.817	05.99	-05.99	.1223	0.7212				
1.669	03.57	-299.1	2.242	03.12	01.73	.0823	0.9399				
0.469	09.74	-238.1	1.828	08.29	-05.18	.1286	0.7713	12	145	045	15
1.069	17.55	-219.1	1.941	11.28	-13.78	.1179	0.8414				
1.669	11.63	-224.4	1.589	08.19	-08.36	.1378	0.5764				
0.469	07.26	-236.1	1.502	06.03	-04.06	.1233	0.4539	16	145	045	15
1.069	21.81	-208.3	1.587	10.74	-19.40	.1557	0.6493				
1.669	19.78	-224.6	1.710	14.17	-14.36	.1355	0.6791				
0.469	10.85	-270.2	1.688	10.85	00.03	.1101	0.5339	20	145	045	15
1.069	15.34	-211.5	2.084	08.15	-13.16	.1004	0.8955				
1.669	28.50	-216.6	1.715	17.93	-23.55	.1327	0.6699				
0.469	11.37	-242.3	1.782	10.09	-05.34	.1013	0.5662	23	145	045	15
1.069	23.72	-213.1	2.066	13.49	-20.20	.0966	0.8380				
1.669	29.96	-214.8	1.873	18.20	-25.32	.1122	0.7215				
0.469	01.13	-135.0	1.912	-00.79	-00.79	.1361	0.9291	00	150	045	15
1.669	03.06	-360.0	2.138	00.00	03.06	.1028	0.9976				
0.469	11.73	-214.8	1.952	06.75	-09.67	.1252	0.9092	08	150	045	15
1.069	08.26	-215.7	1.936	04.84	-06.72	.1220	0.8647				
1.669	04.22	-297.6	2.396	03.74	01.95	.0754	1.0952				
0.469	06.82	-225.0	1.866	04.84	-04.84	.1344	0.8543	12	150	045	15
1.069	21.38	-214.1	1.693	12.37	-17.96	.1356	0.6624				
1.669	12.96	-222.5	1.903	08.83	-09.63	.1277	0.8598				
0.469	09.62	-244.9	1.489	08.72	-04.11	.1324	0.4784	16	150	045	15
1.069	19.52	-180.0	1.763	00.00	-19.52	.1399	0.7600				
1.669	28.46	-220.6	1.776	19.43	-22.37	.1316	0.7292				
0.469	06.61	-225.0	1.619	04.68	-04.68	.1128	0.4931	20	150	045	15
1.069	18.11	-196.9	1.604	05.43	-17.37	.1242	0.5311				
1.669	29.15	-213.4	1.869	17.06	-24.96	.1274	0.8140				
0.469	06.12	-238.7	1.768	05.23	-03.18	.1003	0.5489	23	150	045	15

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
1.069	29.62	-203.3	1.402	12.67	-27.57	.1203	0.3839				
1.669	32.40	-214.4	1.812	19.72	-27.63	.1218	0.7130				
0.269	10.91	-289.8	2.013	10.27	03.73	.1043	0.8327	08	095	045	16
0.869	10.35	-281.8	1.976	10.13	02.13	.1222	0.9210				
1.469	09.87	-270.0	1.937	09.87	00.00	.1325	0.9397				
2.069	13.45	-270.0	2.078	13.45	00.00	.1101	0.9724				
0.269	15.42	-287.2	2.217	14.76	04.66	.0878	0.9642	12	095	045	16
0.869	16.43	-280.5	2.070	16.16	03.07	.1025	0.8950				
1.469	18.54	-271.5	2.153	18.53	00.50	.0949	0.9432				
2.069	17.61	-270.0	2.125	17.61	00.00	.1038	0.9867				
0.269	19.90	-286.2	1.968	19.16	05.75	.0776	0.5773	16	095	045	16
0.869	20.43	-283.7	2.070	19.89	05.04	.0981	0.8559				
1.469	22.20	-279.3	2.106	21.93	03.77	.0977	0.9016				
2.069	22.29	-270.0	2.082	22.29	00.00	.1099	0.9772				
0.269	21.96	-270.0	2.184	21.96	00.00	.0778	0.8118	20	095	045	16
0.869	18.58	-290.9	2.146	17.43	06.83	.0949	0.9327				
1.469	26.85	-292.5	2.100	25.06	10.96	.1012	0.9253				
2.069	28.14	-267.3	2.014	28.11	-01.44	.1198	0.9577				
0.269	24.36	-270.0	2.181	24.36	00.00	.0774	0.8031	23	095	045	16
0.869	15.08	-287.3	2.192	14.42	04.58	.0894	0.9438				
1.469	28.99	-305.5	2.018	24.27	17.83	.0900	0.7247				
2.069	33.67	-260.8	2.023	33.32	-06.08	.1259	1.0216				
0.269	10.85	-293.6	1.901	09.96	04.38	.1126	0.7556	08	100	045	16
0.869	10.31	-274.4	1.986	10.28	00.79	.1204	0.9216				
1.469	10.48	-267.0	1.950	10.46	-00.55	.1299	0.9402				
2.069	11.71	-243.4	1.859	10.50	-05.30	.1317	0.8285				
0.269	16.06	-282.2	2.240	15.71	03.48	.0848	0.9649	12	100	045	16
0.869	15.53	-274.0	2.038	15.49	01.11	.1050	0.8716				
1.469	15.31	-269.2	2.034	15.30	-00.21	.1096	0.9045				
2.069	18.58	-269.0	2.138	18.57	-00.33	.1001	0.9714				
0.269	21.00	-288.7	1.997	19.98	07.01	.0755	0.5879	16	100	045	16
0.869	20.63	-276.6	2.064	20.50	02.47	.0955	0.8258				
1.469	21.63	-225.0	1.992	15.66	-15.66	.0966	0.7467				
2.069	23.43	-266.5	2.103	23.39	-01.51	.1049	0.9640				
0.269	22.71	-270.0	2.215	22.71	00.00	.0747	0.8186	20	100	045	16
0.869	20.15	-285.2	2.146	19.49	05.49	.0921	0.9054				
1.469	26.47	-282.5	2.115	25.92	06.15	.0987	0.9233				
2.069	28.91	-263.1	2.037	28.73	-03.79	.1141	0.9451				
0.269	25.16	-270.0	2.186	25.16	00.00	.0752	0.7865	23	100	045	16
0.869	17.31	-285.4	2.214	16.72	04.73	.0864	0.9441				
1.469	29.74	-295.3	2.074	27.31	13.72	.0907	0.7969				
2.069	33.94	-260.1	2.057	33.54	-06.60	.1186	1.0140				
0.269	10.74	-280.4	1.917	10.56	01.96	.1113	0.7658	08	105	045	16

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,2}}$	α_i	θ	ϕ	RUN
0.869	10.23	-270.0	1.995	10.23	00.00	.1195	0.9277				
1.469	11.14	-252.4	1.915	10.63	-03.40	.1306	0.8957				
2.069	11.37	-240.7	1.877	09.94	-05.62	.1456	0.9414				
0.269	16.53	-273.4	2.214	16.50	01.00	.0842	0.9197	12	105	045	16
0.869	14.36	-270.0	2.019	14.36	00.00	.1091	0.8788				
1.469	14.88	-259.8	2.001	14.65	-02.69	.1196	0.9377				
2.069	19.69	-260.7	2.127	19.45	-03.31	.0990	0.9441				
0.269	21.94	-290.8	2.028	20.63	08.14	.0756	0.6175	16	105	045	16
0.869	17.65	-270.0	2.060	17.65	00.00	.0929	0.7979				
1.469	20.67	-270.0	2.106	20.67	00.00	.0963	0.8883				
2.069	24.88	-258.1	2.145	24.40	-05.46	.0978	0.9599				
0.269	23.17	-257.6	2.098	22.68	-05.25	.0821	0.7480	20	105	045	16
0.869	21.59	-270.6	2.108	21.58	00.23	.0890	0.8244				
1.469	24.09	-270.0	2.100	24.09	00.00	.0957	0.8754				
2.069	30.00	-258.4	2.156	29.49	-06.62	.1007	1.0050				
0.269	24.41	-253.1	1.998	23.47	-07.51	.0874	0.6818	23	105	045	16
0.869	20.35	-275.7	2.188	20.25	02.10	.0862	0.9053				
1.469	28.23	-279.3	2.144	27.91	04.95	.0933	0.9136				
2.069	34.12	-256.6	2.102	33.38	-08.92	.1100	1.0095				
0.269	10.52	-270.0	1.912	10.52	00.00	.1127	0.7694	08	110	045	16
0.869	10.55	-270.0	1.987	10.55	00.00	.1201	0.9212				
1.469	10.66	-246.6	1.944	09.80	-04.27	.1277	0.9161				
2.069	11.55	-238.9	1.891	09.92	-06.02	.1425	0.9421				
0.269	15.79	-270.0	2.101	15.79	00.00	.0908	0.8314	12	110	045	16
0.869	14.10	-270.0	2.025	14.10	00.00	.1070	0.8703				
1.469	15.33	-252.0	2.014	14.61	-04.84	.1176	0.9399				
2.069	17.07	-241.6	1.929	15.11	-08.30	.1318	0.9235				
0.269	22.44	-268.3	2.101	21.41	07.38	.0737	0.6752	16	110	045	16
0.869	18.46	-270.0	2.104	18.46	00.00	.0884	0.8136				
1.469	20.34	-256.7	2.117	19.83	-04.87	.0997	0.9364				
2.069	26.37	-253.8	2.158	25.45	-07.87	.0937	0.9378				
0.269	21.67	-242.6	2.129	19.43	-10.36	.0878	0.8398	20	110	045	16
0.869	23.43	-270.0	2.099	23.43	00.00	.0861	0.7870				
1.469	26.89	-263.2	1.999	26.72	-03.43	.0918	0.7174				
2.069	30.44	-253.2	2.209	29.35	-09.63	.0924	1.0019				
0.269	22.64	-245.5	2.169	20.78	-09.81	.0864	0.8798	23	110	045	16
0.869	22.83	-270.0	2.159	22.83	00.00	.0862	0.8649				
1.469	26.22	-270.0	2.118	26.22	00.00	.0932	0.8772				
2.069	34.22	-252.1	2.117	32.91	-11.80	.1025	0.9626				
0.269	10.84	-270.0	1.952	10.84	00.00	.1141	0.8283	08	115	045	16
0.869	10.39	-258.0	1.920	10.16	-02.18	.1259	0.8701				
1.469	10.68	-243.2	1.947	09.55	-04.86	.1255	0.9044				
2.069	11.59	-236.3	1.908	09.68	-06.49	.1378	0.9347				
0.269	14.59	-270.0	1.925	14.59	00.00	.1040	0.7241	12	115	045	16

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
0.869	14.51	-267.8	2.035	14.50	-00.56	.1071	0.8850				
1.469	15.60	-246.1	2.017	14.32	-06.45	.1165	0.9362				
2.069	16.67	-239.5	1.990	14.46	-08.64	.1220	0.9403				
0.269	19.77	-277.9	1.991	19.59	02.82	.0845	0.6525	16	115	045	16
0.869	18.33	-270.0	2.101	18.33	00.00	.0889	0.8140				
1.469	20.78	-249.7	2.122	19.59	-07.50	.0975	0.9224				
2.069	22.25	-241.8	2.011	19.82	-10.94	.1166	0.9282				
0.269	22.01	-240.7	2.086	19.41	-11.19	.0900	0.8052	20	115	045	16
0.869	26.40	-260.2	2.083	26.06	-04.83	.0827	0.7364				
1.469	25.91	-257.8	2.212	25.39	-05.86	.0822	0.9067				
2.069	30.74	-249.2	2.213	29.07	-11.92	.0869	0.9478				
0.269	23.27	-243.3	2.178	21.01	-10.93	.0871	0.8999	23	115	045	16
0.869	25.70	-270.0	2.097	25.70	00.00	.0852	0.7754				
1.469	28.56	-263.5	2.127	28.40	-03.52	.0912	0.8697				
2.069	33.90	-249.9	2.177	32.25	-13.00	.0934	0.9629				
0.269	01.44	-240.2	1.937	01.24	-00.71	.1317	0.9346	00	120	045	16
0.869	01.78	-025.9	1.998	-00.77	01.60	.1196	0.9328				
1.469	02.42	-090.0	2.041	-02.42	00.00	.1101	0.9178				
2.069	01.67	-045.0	2.031	-01.18	01.18	.1189	0.9759				
0.269	10.77	-270.0	2.002	10.77	00.00	.1151	0.9030	08	120	045	16
0.869	09.85	-252.7	1.955	09.41	-02.95	.1255	0.9158				
1.469	10.50	-241.1	1.945	09.21	-05.11	.1248	0.8965				
2.069	11.60	-231.8	1.915	09.16	-07.23	.1365	0.9358				
0.269	13.18	-270.0	1.864	13.18	00.00	.1040	0.6590	12	120	045	16
0.869	15.03	-256.9	2.002	14.65	-03.48	.1119	0.8783				
1.469	15.16	-242.2	2.009	13.47	-07.20	.1125	0.8924				
2.069	17.79	-236.1	2.009	14.91	-10.14	.1184	0.9394				
0.269	16.69	-270.0	1.893	16.69	00.00	.1010	0.6693	16	120	045	16
0.869	19.65	-260.3	2.137	19.39	-03.44	.0878	0.8501				
1.469	19.92	-244.5	2.091	18.11	-08.86	.1009	0.9101				
2.069	21.58	-238.7	2.021	18.67	-11.61	.1151	0.9304				
0.269	20.69	-239.8	1.996	18.07	-10.75	.0903	0.7021	20	120	045	16
0.869	25.89	-257.6	2.130	25.36	-05.95	.0796	0.7626				
1.469	27.21	-250.8	2.200	25.89	-09.59	.0828	0.8855				
2.069	30.16	-245.5	2.190	27.86	-13.54	.0836	0.8805				
0.269	22.53	-240.3	2.170	19.81	-11.61	.0871	0.8883	23	120	045	16
0.869	28.87	-260.3	2.112	28.52	-05.30	.0814	0.7591				
1.469	29.70	-249.0	2.156	28.03	-11.55	.0797	0.7958				
2.069	32.69	-246.7	2.233	30.42	-14.51	.0825	0.9292				
0.269	11.11	-267.4	2.055	11.09	-00.51	.1126	0.9594	08	125	045	16
0.669	09.76	-246.1	2.013	08.93	-03.98	.1189	0.9495				
0.869	09.78	-247.9	1.940	09.07	-03.71	.1269	0.9045				
1.269	09.81	-239.6	1.930	08.48	-05.00	.1253	0.8792				
1.469	09.77	-238.8	1.975	08.37	-05.09	.1199	0.9025				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.869	10.57	-237.0	1.946	08.89	-05.80	.1275	0.9176				
2.069	12.30	-225.0	1.919	08.76	-08.76	.1339	0.9238				
0.269	11.72	-258.4	1.777	11.48	-02.38	.1033	0.5733	12	125	045	16
0.669	15.02	-251.4	2.021	14.26	-04.89	.1118	0.9034				
0.869	14.79	-249.4	2.015	13.88	-05.30	.1108	0.8875				
1.269	15.19	-242.1	2.016	13.49	-07.24	.1081	0.8675				
1.469	14.73	-239.8	2.040	12.80	-07.53	.1091	0.9086				
1.869	15.27	-238.9	1.998	13.15	-08.02	.1170	0.9124				
2.069	15.98	-232.0	1.962	12.71	-09.99	.1223	0.9017				
0.269	15.72	-270.0	1.904	15.72	00.00	.1059	0.7138	16	125	045	16
0.669	18.96	-244.0	1.949	17.15	-08.56	.1054	0.7619				
0.869	19.21	-252.0	2.086	18.33	-06.14	.0917	0.8204				
1.269	20.10	-244.7	2.130	18.30	-08.88	.0941	0.9021				
1.469	19.56	-242.1	2.126	17.43	-09.43	.0998	0.9502				
1.869	20.08	-242.7	2.157	17.99	-09.51	.0999	0.9987				
2.069	21.06	-235.1	2.025	17.52	-12.42	.1116	0.9077				
0.269	18.63	-241.3	1.897	16.47	-09.19	.0909	0.6060	20	125	045	16
0.669	23.78	-232.6	1.656	19.29	-14.98	.1220	0.5636				
0.869	25.71	-252.6	2.151	24.67	-08.19	.0796	0.7877				
1.269	26.43	-245.7	2.112	24.37	-11.56	.0849	0.7918				
1.469	24.66	-244.4	2.189	22.49	-11.22	.0873	0.9171				
1.869	25.50	-245.6	2.167	23.47	-11.14	.0926	0.9401				
2.069	25.82	-238.5	2.059	22.41	-14.18	.1046	0.8976				
0.269	21.24	-239.5	2.152	18.51	-11.15	.0868	0.8611	23	125	045	16
0.669	26.42	-238.5	1.940	22.95	-14.55	.0964	0.6871				
0.869	28.27	-251.1	2.063	26.96	-09.88	.0811	0.6994				
1.269	29.32	-246.8	2.217	27.30	-12.47	.0738	0.8111				
1.469	29.50	-245.2	2.122	27.18	-13.35	.0768	0.7271				
1.869	29.94	-251.4	2.297	28.62	-10.40	.0739	0.9209				
2.069	32.60	-243.5	2.187	29.78	-15.92	.0811	0.8497				
0.269	11.15	-258.5	2.058	10.93	-02.25	.1132	0.9694	08	130	045	16
0.669	09.70	-244.0	2.001	08.73	-04.28	.1173	0.9194				
0.869	09.49	-244.5	1.945	08.58	-04.11	.1257	0.9030				
1.269	09.47	-238.1	1.943	08.06	-05.03	.1243	0.8899				
1.469	10.02	-226.9	1.944	07.35	-06.88	.1222	0.8767				
1.869	10.45	-232.3	1.970	08.30	-06.43	.1223	0.9132				
2.069	15.59	-211.3	1.834	08.24	-13.40	.1244	0.7530				
0.269	11.15	-244.5	1.638	10.08	-04.85	.1055	0.4743	12	130	045	16
0.669	14.86	-247.4	2.031	13.76	-05.82	.1118	0.9182				
0.869	14.38	-244.4	2.011	13.01	-06.32	.1123	0.8939				
1.269	14.91	-241.0	2.003	13.10	-07.35	.1087	0.8545				
1.469	13.86	-237.5	2.026	11.75	-07.55	.1090	0.8882				
1.869	14.94	-237.3	2.012	12.65	-08.20	.1140	0.9088				
2.069	16.07	-225.0	1.989	11.51	-11.51	.1176	0.9038				
0.269	15.31	-260.8	1.751	15.12	-02.50	.1084	0.5783	16	130	045	16
0.669	17.06	-241.0	2.029	15.02	-08.46	.1054	0.8630				
0.869	19.13	-244.5	2.043	17.38	-08.49	.0995	0.8315				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
1.269	19.66	-242.8	2.164	17.62	-09.27	.0911	0.9201				
1.469	19.10	-239.8	2.169	16.66	-09.88	.0937	0.9551				
1.869	18.78	-240.5	2.155	16.48	-09.50	.0974	0.9706				
2.069	20.11	-229.8	2.002	15.62	-13.29	.1090	0.8554				
0.269	15.37	-246.0	1.784	14.09	-06.37	.0942	0.5279	20	130	045	16
0.669	20.06	-233.8	1.950	16.41	-12.17	.1147	0.8302				
0.869	21.30	-236.0	1.852	17.91	-12.29	.1078	0.6709				
1.269	24.68	-242.2	2.166	22.12	-12.09	.0831	0.8425				
1.469	24.34	-241.5	2.194	21.67	-12.18	.0837	0.8867				
1.869	25.36	-244.2	2.165	23.10	-11.65	.0911	0.9219				
2.069	25.25	-236.2	2.064	21.40	-14.70	.1029	0.8898				
0.269	18.99	-239.4	2.080	16.50	-09.93	.0860	0.7626	23	130	045	16
0.669	25.82	-234.4	1.907	21.47	-15.73	.1013	0.6566				
0.869	24.95	-235.2	1.977	20.90	-14.87	.0961	0.7255				
1.269	29.89	-243.2	2.142	27.16	-14.52	.0740	0.7231				
1.469	29.26	-244.6	2.247	26.84	-13.51	.0734	0.8448				
1.869	31.02	-245.5	2.195	28.68	-14.00	.0771	0.8176				
2.069	31.91	-241.2	2.055	28.61	-16.69	.0847	0.7219				
0.269	10.50	-249.7	2.030	09.86	-03.67	.1166	0.9553	08	135	045	16
0.669	09.69	-243.2	1.999	08.66	-04.40	.1165	0.9097				
0.869	08.63	-241.0	1.965	07.56	-04.20	.1199	0.8881				
1.269	09.51	-231.3	1.891	07.44	-05.97	.1281	0.8467				
1.469	09.30	-225.0	1.920	06.60	-06.60	.1244	0.8598				
1.869	12.01	-225.0	1.981	08.55	-08.55	.1170	0.8891				
2.069	05.63	-216.4	2.209	03.34	-04.53	.0859	0.9316				
0.269	10.76	-239.3	1.565	09.28	-05.54	.1094	0.4417	12	135	045	16
0.669	13.22	-241.0	2.055	11.61	-06.49	.1108	0.9442				
0.869	13.95	-240.2	2.003	12.16	-07.03	.1135	0.8920				
1.269	14.14	-239.4	1.971	12.23	-07.30	.1136	0.8498				
1.469	12.53	-236.0	2.002	10.43	-07.08	.1107	0.8690				
1.869	14.21	-230.2	2.000	11.00	-09.20	.1122	0.8779				
2.069	15.29	-221.2	1.923	10.20	-11.62	.1204	0.8364				
0.269	14.40	-246.2	1.513	13.22	-05.91	.1141	0.4270	16	135	045	16
0.669	15.16	-238.3	1.935	12.98	-08.10	.1145	0.8102				
0.869	18.95	-236.3	1.982	15.94	-10.78	.1066	0.8106				
1.269	19.77	-239.9	2.167	17.27	-10.21	.0885	0.8990				
1.469	18.53	-237.4	2.179	15.76	-10.23	.0893	0.9244				
1.869	18.20	-238.6	2.021	15.67	-09.72	.1013	0.8187				
2.069	19.30	-225.0	1.988	13.90	-13.90	.1094	0.8405				
0.269	12.92	-267.3	1.739	12.90	-00.61	.0978	0.5121	20	135	045	16
0.669	18.41	-233.3	1.980	14.94	-11.25	.1111	0.8426				
0.869	20.39	-225.0	1.966	14.72	-14.72	.1127	0.8369				
1.269	24.57	-228.1	1.792	18.79	-16.97	.1163	0.6599				
1.469	23.52	-238.0	2.127	20.25	-12.98	.0863	0.8234				
1.869	24.16	-242.6	2.224	21.71	-11.66	.0854	0.9480				
2.069	24.68	-234.1	2.065	20.41	-15.08	.0982	0.8502				
0.269	15.54	-240.1	1.886	13.55	-07.89	.0910	0.5968	23	135	045	16

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o \approx 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.669	24.73	-233.5	1.940	20.31	-15.32	.1012	0.7218				
0.869	24.07	-232.8	2.019	19.58	-15.11	.0995	0.8020				
1.269	29.89	-233.0	1.846	24.65	-19.08	.1045	0.6442				
1.469	28.05	-238.7	2.050	24.47	-15.47	.0825	0.6977				
1.869	27.95	-243.3	2.193	25.36	-13.40	.0813	0.8592				
2.069	28.41	-236.2	2.032	24.20	-16.74	.0949	0.7809				
0.269	09.32	-242.5	2.005	08.28	-04.33	.1199	0.9453	08	140	045	16
0.669	08.95	-240.1	2.061	07.77	-04.48	.1107	0.9523				
0.869	08.32	-242.3	1.987	07.37	-03.88	.1170	0.8971				
1.269	07.66	-238.6	1.904	06.54	-04.00	.1248	0.8413				
1.469	07.80	-233.6	1.924	06.29	-04.64	.1227	0.8535				
1.869	00.99	-250.6	2.290	00.93	-00.32	.0850	1.0459				
2.069	05.23	-156.8	2.237	-02.06	-04.80	.0841	0.9527				
0.269	09.61	-239.5	1.706	08.30	-04.91	.1070	0.5329	12	140	045	16
0.669	12.68	-237.1	1.999	10.69	-06.96	.1149	0.8973				
0.869	13.91	-236.3	1.933	11.64	-07.82	.1193	0.8411				
1.269	14.50	-238.9	1.932	12.48	-07.60	.1172	0.8250				
1.469	08.87	-238.1	2.002	07.54	-04.71	.1100	0.8635				
1.869	09.47	-239.5	2.064	08.17	-04.83	.1055	0.9123				
2.069	11.05	-210.2	2.014	05.61	-09.58	.1109	0.8866				
0.269	13.87	-235.3	1.499	11.47	-08.00	.1098	0.4026	16	140	045	16
0.669	13.94	-235.6	1.804	11.57	-07.98	.1171	0.6768				
0.869	19.29	-225.0	1.743	13.90	-13.90	.1317	0.6940				
1.269	19.42	-225.0	1.890	13.99	-13.99	.1130	0.7460				
1.469	17.71	-235.8	2.185	14.79	-10.17	.0884	0.9231				
1.869	15.36	-239.1	2.024	13.26	-08.02	.1027	0.8342				
2.069	15.63	-225.0	2.007	11.19	-11.19	.1090	0.8618				
0.269	11.95	-270.0	1.782	11.95	00.00	.0999	0.5583	20	140	045	16
0.669	16.76	-227.1	1.940	12.44	-11.58	.1063	0.7583				
0.869	19.08	-225.0	1.992	13.74	-13.74	.1087	0.8397				
1.269	26.57	-223.1	1.717	18.86	-20.06	.1302	0.6596				
1.469	24.99	-222.0	1.814	17.32	-19.10	.1148	0.6741				
1.869	22.97	-241.1	2.230	20.35	-11.57	.0843	0.9449				
2.069	21.75	-231.5	2.107	17.33	-13.94	.0958	0.8854				
0.269	10.31	-242.9	1.791	09.19	-04.73	.0928	0.5258	23	140	045	16
0.669	22.51	-233.2	1.915	18.35	-13.94	.1028	0.7049				
0.869	24.78	-225.0	1.943	18.07	-18.07	.1040	0.7450				
1.269	30.76	-225.2	1.910	22.89	-22.75	.1037	0.7058				
1.469	29.45	-269.7	1.883	29.44	-00.16	.1025	0.6693				
1.869	27.82	-233.9	1.955	23.09	-17.27	.1006	0.7339				
2.069	26.70	-234.6	2.163	22.29	-16.24	.0869	0.8773				
0.269	07.86	-235.8	1.949	06.51	-04.43	.1272	0.9192	08	145	045	16
0.669	09.97	-239.0	2.023	08.56	-05.17	.1130	0.9166				
0.869	06.83	-242.7	2.010	06.07	-03.14	.1086	0.8627				
1.269	08.60	-230.7	1.751	06.67	-05.47	.1282	0.6839				
1.469	10.79	-239.8	1.670	09.35	-05.47	.1380	0.6512				
1.869	03.16	-315.0	2.201	02.24	02.24	.0879	0.9412				
2.069	01.61	-045.0	2.275	-01.28	01.28	.0827	0.9939				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
0.269	08.28	-245.8	1.724	07.56	-03.41	.1109	0.5679	12	145	045	16
0.669	11.11	-225.0	1.968	07.90	-07.90	.1208	0.8994				
0.869	13.24	-225.0	1.979	09.45	-09.45	.1166	0.8827				
1.269	17.06	-233.9	1.939	13.92	-10.24	.1160	0.8257				
1.469	07.18	-226.6	1.887	05.23	-04.94	.1107	0.7271				
1.869	11.11	-239.9	1.680	09.64	-05.62	.1306	0.6255				
2.069	11.80	-212.5	1.683	06.40	-09.99	.1300	0.6255				
0.269	12.14	-225.0	1.524	08.65	-08.65	.1068	0.4059	16	145	045	16
0.669	12.93	-234.8	1.762	10.62	-07.53	.1263	0.6850				
0.869	16.25	-225.0	1.840	11.65	-11.65	.1288	0.7867				
1.269	20.81	-214.1	1.589	12.02	-17.46	.1511	0.6318				
1.469	18.99	-216.7	1.772	11.62	-15.42	.1243	0.6842				
1.869	11.22	-244.9	2.087	10.18	-04.81	.0980	0.8781				
2.069	11.15	-215.6	2.021	06.54	-09.10	.1034	0.8360				
0.269	11.24	-270.0	1.716	11.24	00.00	.1034	0.5231	20	145	045	16
0.669	15.31	-214.8	1.749	08.88	-12.66	.1078	0.5731				
0.869	17.05	-220.1	1.933	11.17	-13.20	.1025	0.7229				
1.269	23.98	-222.3	1.923	16.65	-18.19	.1160	0.8055				
1.469	24.69	-213.7	1.823	14.31	-20.93	.1184	0.7048				
1.869	25.98	-223.0	1.726	18.38	-19.61	.1338	0.6865				
2.069	19.99	-232.4	2.075	16.07	-12.51	.0978	0.8600				
0.269	07.10	-259.9	1.724	06.99	-01.25	.0945	0.4836	23	145	045	16
0.669	18.94	-227.1	1.885	14.11	-13.14	.1032	0.6753				
0.869	23.04	-221.6	1.932	15.76	-17.64	.1040	0.7325				
1.269	27.11	-219.8	2.005	18.14	-21.47	.1035	0.8163				
1.469	27.72	-216.8	1.950	17.47	-22.81	.1058	0.7658				
1.869	28.20	-227.2	1.844	21.47	-20.01	.1116	0.6859				
2.069	29.65	-223.1	1.944	21.25	-22.56	.1044	0.7493				
0.269	-00.04	-059.6	1.926	00.00	00.00	.1341	0.9353	00	150	045	16
0.669	01.82	-109.2	1.934	-01.71	-00.59	.1259	0.8890				
0.869	00.88	-330.0	2.025	00.44	00.76	.1143	0.9298				
1.269	02.20	-315.0	2.075	01.55	01.55	.1103	0.9700				
1.469	01.53	-315.0	2.051	01.08	01.08	.1127	0.9544				
1.869	04.03	-315.0	2.057	02.85	02.85	.1143	0.9774				
2.069	01.77	-360.0	2.039	00.00	01.77	.1184	0.9845				
0.269	06.14	-215.3	1.838	03.55	-05.01	.1364	0.8971	08	150	045	16
0.669	11.09	-227.5	1.901	08.22	-07.54	.1196	0.8026				
0.869	07.00	-238.1	1.697	05.95	-03.71	.1144	0.5621				
1.269	08.28	-225.0	2.052	05.87	-05.87	.1176	0.9976				
1.469	05.45	-229.0	2.069	04.11	-03.58	.1124	0.9792				
1.869	03.86	-312.9	2.339	02.82	02.63	.0802	1.0662				
2.069	03.22	-315.0	2.293	02.27	02.27	.0837	1.0346				
0.269	07.69	-270.0	1.628	07.69	00.00	.1230	0.5449	12	150	045	16
0.669	09.34	-204.4	1.928	03.88	-08.51	.1270	0.8887				
0.869	14.71	-211.0	1.901	07.70	-12.68	.1237	0.8301				
1.269	17.58	-225.0	1.826	12.62	-12.62	.1212	0.7249				
1.469	12.01	-213.3	1.646	06.66	-10.08	.1214	0.5526				
1.869	11.06	-236.5	1.989	09.25	-06.15	.1219	0.9376				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
2.069	03.51	-229.3	2.223	02.66	-02.29	.0876	0.9710				
0.269	09.32	-270.0	1.565	09.32	00.00	.1009	0.4074	16	150	045	16
0.669	10.10	-225.0	1.896	07.17	-07.17	.1262	0.8404				
0.869	13.77	-213.5	1.895	07.70	-11.54	.1332	0.8857				
1.269	22.36	-203.9	1.859	09.46	-20.61	.1386	0.8724				
1.469	20.18	-211.8	1.843	10.96	-17.34	.1316	0.8072				
1.869	12.03	-238.3	1.726	10.27	-06.38	.1145	0.5876				
2.069	10.03	-212.2	2.012	05.38	-08.51	.1062	0.8461				
0.269	09.88	-262.5	1.720	09.79	-01.30	.1040	0.5289	20	150	045	16
0.669	13.25	-200.4	1.500	04.69	-12.44	.1119	0.4108				
0.869	21.18	-208.4	1.312	10.44	-18.82	.1341	0.3777				
1.269	20.30	-214.8	1.991	12.23	-17.32	.1072	0.8273				
1.469	25.82	-211.2	1.950	14.07	-22.48	.1114	0.8063				
1.869	27.31	-225.0	1.662	20.06	-20.06	.1400	0.6527				
2.069	19.08	-224.5	1.768	13.62	-13.85	.1162	0.6356				
0.269	06.42	-270.0	1.698	06.42	00.00	.0962	0.4733	23	150	045	16
0.669	13.84	-217.7	1.787	08.56	-11.03	.1039	0.5850				
0.869	22.08	-214.9	1.793	13.06	-18.40	.1053	0.5989				
1.269	22.46	-216.4	2.151	13.78	-13.40	.0885	0.8759				
1.469	27.31	-213.9	2.049	16.06	-23.19	.1032	0.8719				
1.869	27.45	-223.5	1.905	19.67	-20.64	.1102	0.7440				
2.069	27.22	-217.3	1.801	17.31	-22.25	.1259	0.7246				
0.269	05.08	-207.0	1.876	02.31	-04.52	.1364	0.8805	08	155	045	16
0.469	05.86	-211.7	2.000	03.08	-04.99	.1172	0.9170				
0.669	13.25	-216.9	1.728	08.04	-10.66	.1349	0.6944				
0.869	04.80	-206.8	1.813	02.16	-04.28	.1177	0.6899				
1.069	08.88	-208.0	1.784	04.19	-07.85	.1402	0.7858				
1.269	06.24	-196.6	1.972	01.78	-05.98	.1241	0.9298				
1.469	05.77	-225.0	1.993	04.09	-04.09	.1113	0.8612				
1.669	07.42	-204.8	2.027	03.12	-06.74	.0998	0.8141				
1.869	05.15	-299.8	2.327	04.47	02.56	.0789	1.0282				
2.069	04.08	-301.9	2.253	03.46	02.15	.0852	0.9896				
0.269	06.49	-291.7	1.761	06.03	02.40	.1273	0.6894	12	155	045	16
0.469	05.26	-206.5	1.865	02.35	-04.71	.1365	0.3665				
0.669	08.12	-180.0	1.890	00.00	-08.12	.1321	0.8716				
0.869	15.01	-197.9	1.917	04.71	-14.31	.1223	0.8413				
1.069	11.41	-225.0	1.867	08.12	-08.12	.1247	0.7941				
1.269	17.01	-213.7	1.654	09.63	-14.27	.1393	0.6417				
1.469	13.11	-210.2	1.811	06.68	-11.38	.1180	0.6892				
1.669	12.21	-205.7	1.715	05.36	-11.03	.1492	0.7531				
1.869	08.52	-231.4	2.357	06.67	-05.33	.0879	1.2009				
2.069	01.94	-299.9	2.537	01.68	00.96	.0712	1.2874				
0.269	06.81	-237.3	1.491	05.73	-03.69	.1171	0.4243	16	155	045	16
0.469	08.35	-241.0	1.643	07.31	-04.07	.1313	0.5951				
0.669	08.87	-210.2	1.858	04.48	-07.66	.1295	0.8134				
0.869	12.68	-205.1	1.919	05.45	-11.51	.1298	0.8957				
1.069	19.11	-147.6	1.905	-10.46	-16.34	.1325	0.8946				
1.269	21.26	-180.0	1.937	00.00	-21.26	.1267	0.8990				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
1.469	26.63	-209.3	1.901	13.78	-23.61	.1281	0.8600				
1.669	33.78	-221.3	1.770	23.82	-26.68	.1347	0.7397				
1.869	16.44	-211.6	1.951	08.78	-14.10	.0971	0.7041				
2.069	11.51	-197.4	1.833	03.48	-10.99	.1202	0.7263				
0.269	06.66	-238.5	1.492	05.68	-03.49	.1174	0.4258	20	155	045	16
0.269	09.08	-261.2	1.546	08.97	-01.40	.1106	0.4341				
0.469	06.65	-225.0	1.604	04.71	-04.71	.0983	0.4204				
0.669	06.31	-180.0	3.020	00.00	-06.31	.0287	1.0843				
0.869	15.65	-188.3	1.805	02.31	-15.49	.0755	0.4371				
0.869	22.54	-203.0	2.059	09.21	-20.90	.0602	0.5159				
1.069	23.81	-180.0	1.441	00.00	-23.81	.1442	0.4865				
1.269	23.68	-203.3	1.904	09.84	-21.93	.1127	0.7594				
1.469	26.80	-209.2	2.042	13.84	-23.79	.1061	0.8862				
1.469	28.29	-211.4	1.848	15.66	-24.67	.1284	0.7937				
1.669	32.16	-212.1	1.947	18.47	-28.04	.1185	0.8539				
1.869	29.10	-221.5	1.846	20.24	-22.62	.1247	0.7687				
2.069	26.47	-215.5	1.586	16.12	-22.06	.1393	0.5799				
2.069	26.41	-215.6	1.580	16.12	-21.98	.1401	0.5784				
0.269	05.67	-270.0	1.625	05.67	00.00	.0990	0.4366	23	155	045	16
0.469	03.14	-225.0	1.643	02.22	-02.22	.1069	0.4845				
0.669	10.01	-204.1	1.680	04.12	-09.15	.1050	0.5031				
0.869	19.10	-206.4	1.621	08.75	-17.23	.1078	0.4727				
1.069	18.22	-180.0	1.810	00.00	-18.22	.0944	0.5507				
1.269	19.21	-209.1	2.183	09.61	-16.93	.0793	0.8261				
1.469	25.38	-213.3	2.118	15.23	-22.51	.0934	0.8790				
1.669	28.08	-213.7	1.962	16.48	-23.93	.1056	0.7789				
1.869	29.53	-215.5	1.901	18.20	-24.75	.1137	0.7634				
2.069	26.18	-216.0	1.950	16.11	-21.68	.1153	0.8349				
0.269	04.25	-152.0	1.806	-01.99	-03.75	.1388	0.8049	08	160	045	16
0.469	02.22	-161.3	1.735	-00.71	-02.10	.1273	0.6624				
0.669	11.08	-225.0	1.600	07.88	-07.88	.1358	0.5772				
0.869	05.96	-201.9	1.874	02.23	-05.53	.1256	0.8084				
1.069	08.03	-207.4	1.904	03.71	-07.13	.1375	0.9267				
1.269	05.04	-201.5	1.981	01.85	-04.69	.1255	0.9530				
1.469	04.90	-180.0	2.015	00.00	-04.90	.1216	0.9741				
1.669	04.00	-180.0	1.990	00.00	-04.00	.1261	0.9717				
1.869	04.50	-296.6	2.568	04.02	02.01	.0731	1.3883				
2.069	05.09	-287.8	2.242	04.84	01.56	.0865	0.9870				
0.269	05.68	-282.8	1.934	05.54	01.26	.1303	0.9200	12	160	045	16
0.469	03.95	-180.0	1.884	00.00	-03.95	.1373	0.8973				
0.669	06.69	-155.6	1.910	-01.67	-06.48	.1334	0.9076				
0.869	07.71	-151.7	2.051	-03.67	-06.79	.1141	0.9667				
1.069	05.37	-211.8	1.882	02.83	-04.56	.1265	0.8243				
1.269	09.36	-212.2	1.909	05.01	-07.94	.1278	0.8684				
1.469	10.59	-206.9	1.932	04.83	-09.46	.1321	0.9305				
1.669	09.79	-204.4	1.840	04.07	-08.93	.1496	0.9134				
1.869	21.21	-194.9	1.929	05.69	-20.55	.1234	0.8646				
2.069	03.51	-288.8	2.454	03.32	01.13	.0686	1.0902				
0.269	04.65	-270.0	1.822	04.65	00.00	.1128	0.6704	16	160	045	16

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	ϕ	RUN
0.469	05.63	-233.5	1.882	04.53	-03.35	.1259	0.8208				
0.669	07.32	-173.2	1.895	-00.87	-07.26	.1300	0.8644				
0.869	12.64	-166.1	1.906	-03.08	-12.28	.1325	0.8960				
1.069	17.34	-137.4	1.845	-11.93	-12.94	.1299	0.7996				
1.269	26.35	-140.9	1.518	-17.34	-21.02	.1247	0.4700				
1.669	33.50	-234.8	1.493	28.40	-20.88	.1544	0.5611				
1.869	19.96	-212.9	1.924	11.15	-16.95	.1190	0.8278				
2.069	15.75	-198.5	1.984	05.11	-14.97	.1166	0.8903				
0.269	05.17	-270.0	1.814	05.17	00.00	.1034	0.6070	20	160	045	16
0.469	05.44	-233.3	1.795	04.36	-03.25	.1110	0.6331				
0.669	05.92	-180.0	1.775	00.00	-05.92	.1179	0.6522				
0.869	11.00	-180.0	1.683	00.00	-11.00	.1220	0.5870				
1.069	12.33	-150.5	1.490	-06.39	-11.21	.1191	0.4311				
1.269	26.61	-191.4	1.352	05.65	-26.15	.1127	0.3353				
1.869	42.98	-219.8	2.174	30.81	-35.60	.0862	0.8847				
2.069	27.57	-213.1	1.714	15.91	-23.62	.1289	0.6494				
0.269	03.60	-295.7	1.776	03.24	01.56	.0976	0.5405	23	160	045	16
0.469	02.57	-239.9	1.673	02.22	-01.29	.1083	0.5134				
0.669	07.56	-185.5	1.492	00.72	-07.52	.1113	0.4039				
1.069	14.24	-160.6	1.516	-04.81	-13.46	.0959	0.3604				
1.269	24.39	-201.4	1.415	09.39	-22.88	.1121	0.3645				
1.469	28.51	-211.1	1.675	15.67	-24.94	.0979	0.4657				
1.669	28.47	-211.7	1.643	15.90	-24.76	.1188	0.5386				
1.869	32.06	-213.0	1.602	18.83	-27.71	.1365	0.5818				
0.269	02.18	-135.0	1.856	-01.54	-01.54	.1409	0.8823	08	165	045	16
0.469	00.32	-120.3	1.903	-00.27	-00.16	.1353	0.9110				
0.669	03.71	-240.0	1.995	03.21	-01.85	.1238	0.9609				
0.869	04.22	-222.3	1.986	02.84	-03.12	.1276	0.9765				
1.069	06.57	-207.3	1.932	03.02	-05.84	.1320	0.9292				
1.269	04.31	-205.1	1.970	01.83	-03.90	.1255	0.9375				
1.469	04.16	-186.9	1.980	00.50	-04.13	.1238	0.9385				
1.669	03.77	-180.0	1.973	00.00	-03.77	.1262	0.9472				
1.869	03.90	-180.0	1.952	00.00	-03.90	.1326	0.9625				
2.069	04.18	-270.0	2.494	04.18	00.00	.0784	1.3273				
0.269	05.24	-270.0	1.753	05.24	00.00	.1388	0.7425	12	165	045	16
0.469	01.04	-180.4	1.782	00.00	-01.04	.1360	0.7603				
0.669	05.90	-168.4	1.876	-01.19	-05.78	.1373	0.8864				
0.869	04.97	-144.3	1.970	-02.90	-04.04	.1297	0.9690				
1.069	05.25	-207.7	1.874	02.44	-04.65	.1459	0.9392				
1.269	06.55	-212.7	1.930	03.54	-05.51	.1391	0.9761				
1.469	08.48	-209.8	1.912	04.23	-07.37	.1391	0.9492				
1.669	08.11	-202.9	1.837	03.17	-07.47	.1460	0.8880				
1.869	11.64	-180.0	1.801	00.00	-11.64	.1485	0.8550				
2.069	04.19	-270.0	2.564	04.19	00.00	.0788	1.4870				
0.269	04.68	-294.5	1.867	04.26	01.94	.1175	0.7480	16	165	045	16
0.469	07.17	-225.0	1.771	05.09	-05.09	.1283	0.7054				
0.669	07.27	-154.0	1.761	-03.20	-06.54	.1327	0.7186				
0.869	11.83	-150.3	1.863	-05.92	-10.31	.1335	0.8444				
1.069	10.66	-132.7	1.880	-07.87	-07.27	.1259	0.8180				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_0 = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,a}}$	α_i	θ	β	RUN
1.269	15.89	-112.6	1.995	-14.72	-06.24	.1046	0.8124				
1.469	04.75	-225.0	2.591	03.36	-03.36	.0615	1.2104				
1.669	13.41	-234.0	1.627	10.91	-07.97	.1482	0.6555				
1.869	14.52	-217.6	1.829	08.98	-11.59	.1413	0.8484				
2.069	18.77	-191.8	1.974	03.97	-18.40	.1395	1.0481				
0.269	04.08	-270.0	1.782	04.08	00.00	.1068	0.5969	20	165	045	16
0.469	06.57	-225.0	1.671	04.65	-04.65	.1103	0.5213				
0.669	04.52	-162.3	1.674	-01.37	-04.30	.1177	0.5585				
0.869	08.81	-155.6	1.653	-03.66	-08.03	.1255	0.5775				
1.069	07.04	-090.0	1.745	-07.04	00.00	.1066	0.5634				
1.269	07.26	-135.0	1.850	-05.14	-05.14	.0959	0.5948				
1.469	18.54	-205.7	1.894	08.27	-16.81	.0827	0.5486				
1.669	01.58	-155.7	1.597	-00.65	-01.44	.0999	0.4226				
1.869	24.46	-230.9	1.513	19.44	-16.00	.1222	0.4570				
2.069	32.84	-209.7	1.524	17.73	-29.27	.1647	0.6263				
0.269	03.49	-296.8	1.695	03.11	01.57	.1019	0.4992	23	165	045	16
0.469	02.97	-233.1	1.603	02.37	-01.78	.1087	0.4642				
0.669	03.50	-180.0	1.493	00.00	-03.50	.1102	0.4003				
0.869	08.65	-152.8	1.563	-03.97	-07.70	.0936	0.3767				
1.069	08.38	-116.4	1.516	-07.51	-03.74	.1061	0.3988				
1.269	11.70	-187.2	1.645	01.48	-11.61	.0924	0.4199				
1.469	27.22	-206.9	1.547	13.10	-24.64	.1028	0.4041				
1.669	12.22	-211.0	1.500	06.36	-10.51	.1046	0.3840				
1.869	42.46	-213.2	1.696	26.61	-37.44	.1181	0.5799				
2.069	-05.28	-184.2	1.981	00.00	00.00	.0753	0.5717				
0.469	01.07	-209.8	1.887	00.53	-00.92	.1423	0.9346	08	170	045	16
0.669	02.77	-225.0	1.934	01.95	-01.95	.1351	0.9538				
1.069	05.07	-205.4	1.969	02.17	-04.58	.1273	0.9490				
1.269	03.85	-199.1	1.999	01.26	-03.63	.1222	0.9541				
1.669	03.65	-180.0	1.970	00.00	-03.65	.1257	0.9385				
1.869	04.12	-180.0	1.949	00.00	-04.12	.1312	0.9479				
0.469	06.28	-172.6	1.631	-00.61	-06.22	.1305	0.5811	12	170	045	16
0.669	06.94	-165.3	1.724	-01.76	-06.71	.1447	0.7405				
1.069	06.32	-196.9	1.856	01.84	-06.04	.1478	0.9255				
1.269	06.06	-203.0	1.837	02.73	-06.41	.1533	0.9320				
1.669	08.97	-204.1	1.849	03.68	-08.19	.1406	0.8707				
1.869	04.68	-170.2	2.015	-00.79	-04.61	.1190	0.9531				
0.469	12.22	-208.6	1.669	05.91	-10.76	.1265	0.5962	16	170	045	16
0.669	05.84	-150.4	1.699	-02.89	-05.08	.1232	0.6073				
1.069	06.18	-120.8	2.038	-05.31	-03.17	.1120	0.9302				
1.269	08.23	-089.5	2.057	-08.22	00.07	.1118	0.9559				
1.669	03.31	-209.9	1.797	01.65	-02.87	.1624	0.9286				
1.869	09.70	-206.1	1.846	04.30	-08.72	.1638	1.0100				
0.469	11.07	-204.6	1.618	04.65	-10.08	.1083	0.4730	20	170	045	16
0.669	04.84	-158.3	1.699	-01.79	-04.49	.1109	0.5465				
1.069	05.92	-090.0	1.803	-05.92	00.00	.1062	0.6128				
1.269	06.52	-059.0	1.945	-05.59	03.36	.0998	0.7171				
1.669	06.91	-026.2	2.140	-03.06	06.20	.0956	0.9303				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.869	00.93	-311.1	2.074	00.70	00.61	.1120	0.9840				
0.469	06.55	-201.3	1.571	02.38	-06.10	.1057	0.4304	23	170	045	16
0.669	04.67	-180.0	1.518	00.00	-04.67	.1107	0.4172				
1.069	05.20	-038.0	1.492	-03.20	04.10	.1061	0.3852				
1.269	04.62	-030.2	1.828	-02.32	03.99	.0907	0.5440				
1.669	04.45	-348.7	1.880	00.87	04.36	.1060	0.6889				
1.869	01.39	-210.2	1.957	00.69	-01.20	.1059	0.7753				
0.469	02.03	-182.3	1.855	00.08	-02.02	.1465	0.9156	08	175	045	16
0.669	03.06	-213.2	1.898	01.67	-02.56	.1380	0.9219				
1.069	04.94	-192.7	1.959	01.08	-04.82	.1269	0.9314				
1.269	03.98	-188.9	1.931	00.61	-03.93	.1249	0.8784				
1.669	04.44	-180.0	1.954	00.00	-04.44	.1266	0.9225				
1.869	04.12	-180.0	1.952	00.00	-04.12	.1310	0.9509				
0.469	14.63	-180.0	1.656	00.00	-14.63	.1294	0.5976	12	175	045	16
0.669	06.99	-178.4	1.698	-00.19	-06.98	.1456	0.7165				
1.069	08.82	-180.0	1.711	00.00	-08.82	.1536	0.7710				
1.269	08.04	-189.1	1.676	01.28	-07.94	.1605	0.7640				
1.669	02.91	-180.0	2.046	00.00	-02.91	.1140	0.9581				
1.869	03.73	-180.0	2.030	00.00	-03.73	.1187	0.9728				
0.469	15.32	-180.0	1.692	00.00	-15.32	.1232	0.6009	16	175	045	16
0.669	09.80	-166.0	1.747	-02.39	-09.51	.1187	0.6290				
1.069	06.44	-180.0	1.950	00.00	-06.44	.1174	0.8503				
1.269	03.33	-061.2	2.022	-02.91	01.60	.1167	0.9451				
1.669	03.34	-180.0	1.810	00.00	-03.34	.1631	0.9516				
1.869	08.43	-190.3	1.717	01.51	-08.29	.1[illegible]	0.9470				
0.469	13.32	-180.0	1.631	00.00	-13.32	.1057	0.4706	20	175	045	16
0.669	07.41	-174.0	1.732	-00.77	-07.41	.1074	0.5562				
1.069	07.25	-180.0	1.795	00.00	-07.25	.1132	0.6452				
1.269	03.60	-062.6	1.877	-01.94	03.03	.1053	0.6807				
1.669	06.09	000.0	2.102	00.00	06.00	.0963	0.8834				
1.869	01.69	-332.9	1.868	00.77	01.50	.1307	0.8597				
0.469	09.53	-180.0	1.569	00.00	-09.53	.1047	0.4250	23	175	045	16
0.669	08.04	-180.0	1.521	00.00	-08.04	.1107	0.4191				
1.069	03.52	-340.7	1.524	01.16	03.32	.0980	0.3726				
1.269	11.51	000.0	1.733	00.00	11.51	.0956	0.4961				
1.669	05.31	000.0	1.812	00.00	05.31	.1087	0.6362				
1.869	03.65	-315.0	1.779	02.58	02.58	.1182	0.6579				
0.269	-00.09	-315.0	1.923	00.00	00.00	.1350	0.9374	00	180	045	16
0.469	00.06	-250.3	1.922	00.05	-00.02	.1358	0.9416				
0.669	00.97	-135.0	1.905	-00.68	-00.68	.1368	0.9233				
0.869	-00.08	-026.7	1.960	00.00	00.00	.1287	0.9463				
1.069	00.04	-270.0	1.947	00.04	00.00	.1306	0.9415				
1.269	00.03	-135.0	1.940	-00.02	-00.02	.1326	0.9454				
1.469	00.65	-149.8	1.913	-00.32	-00.56	.1377	0.9413				
1.669	01.95	-180.0	1.893	00.00	-01.95	.1432	0.9490				
1.869	02.59	-180.0	1.869	00.00	-02.59	.1506	0.9620				
2.069	04.57	-172.1	1.738	-00.63	-04.52	.1626	0.8499				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	β	RUN
0.269	-00.47	-315.0	1.582	00.00	00.00	.1510	0.6249	08	180	045	16
0.469	01.84	-180.0	1.867	00.00	-01.84	.1448	0.9223				
0.669	03.26	-176.4	1.923	-00.20	-03.25	.1362	0.9459				
0.869	03.10	-180.0	1.967	00.00	-03.10	.1289	0.9582				
1.069	04.46	-180.0	1.992	00.00	-04.46	.1256	0.9554				
1.269	03.74	-180.0	1.999	00.00	-03.74	.1221	0.9538				
1.469	03.94	-135.0	2.017	-02.78	-02.78	.1192	0.9579				
1.469	03.94	-180.0	2.017	00.00	-03.94	.1192	0.9579				
1.669	04.08	-180.0	1.963	00.00	-04.08	.1262	0.9321				
1.869	04.14	-186.2	1.952	00.44	-04.11	.1305	0.9473				
2.069	04.93	-179.2	1.934	-00.06	-04.92	.1368	0.9661				
0.269	12.59	-180.0	1.656	00.00	-12.59	.1405	0.6489	12	180	045	16
0.469	04.65	-202.8	1.729	01.80	-04.29	.1261	0.6503				
0.669	06.54	-180.0	1.794	00.00	-06.54	.1431	0.8150				
0.869	05.55	-180.0	1.872	00.00	-05.55	.1431	0.9186				
1.069	06.47	-180.0	1.853	00.00	-06.47	.1488	0.9271				
1.269	08.76	-180.0	1.813	00.00	-08.76	.1571	0.9209				
1.469	09.26	-180.0	1.830	00.00	-09.26	.1515	0.9113				
1.669	08.35	-165.0	1.925	-02.17	-08.06	.1310	0.9123				
1.869	03.89	-186.9	1.994	00.60	-03.84	.1210	0.9375				
2.069	05.34	-169.4	2.001	-00.98	-05.24	.1243	0.9745				
0.269	03.52	-180.0	1.739	00.00	-03.52	.1316	0.6888	16	180	045	16
0.469	10.78	-153.1	1.671	-04.92	-09.63	.1260	0.5954				
0.669	12.39	-180.0	1.753	00.00	-12.39	.1207	0.6454				
0.869	07.83	-161.8	1.901	-02.45	-07.44	.1260	0.8456				
1.069	06.87	-233.1	1.942	05.50	-04.13	.1198	0.8563				
1.269	00.23	-315.0	1.885	00.16	00.16	.1259	0.8242				
1.469	00.61	-057.5	1.796	-00.51	00.32	.1462	0.8347				
1.669	03.67	-151.7	1.734	-01.74	-03.23	.1677	0.8716				
1.869	08.98	-180.0	1.622	00.00	-08.98	.1968	0.8641				
2.069	22.13	-180.0	1.493	00.00	-22.13	.2296	0.8344				
0.269	05.38	-180.0	1.717	00.00	-05.38	.1121	0.5678	20	180	045	16
0.469	07.68	-151.6	1.664	-03.66	-06.76	.1050	0.4910				
0.669	08.17	-180.0	1.749	00.00	-08.17	.1067	0.5673				
0.869	07.74	-180.0	1.734	00.00	-07.74	.1147	0.5961				
1.069	05.87	-263.5	1.712	05.83	-00.66	.1096	0.5507				
1.269	01.74	-343.6	1.770	00.49	01.66	.1077	0.5914				
1.469	10.93	000.0	1.952	00.00	10.93	.0909	0.6600				
1.669	08.16	-333.2	1.803	03.69	07.29	.1043	0.6019				
1.869	01.61	-029.5	1.547	-00.79	01.40	.1428	0.5615				
2.069	06.15	-207.8	1.579	02.87	-05.44	.1664	0.6856				
0.269	06.44	-207.2	1.594	02.95	-05.73	.1086	0.4573	23	180	045	16
0.469	04.44	-170.2	1.595	-00.75	-04.37	.1045	0.4411				
0.669	09.22	-180.0	1.488	00.00	-09.22	.1094	0.3949				
0.869	04.94	-156.4	1.614	-01.98	-04.52	.0886	0.3845				
1.069	06.61	-300.6	1.511	05.43	03.22	.1056	0.3939				
1.269	13.27	000.0	1.548	00.00	13.27	.0996	0.3921				
1.469	13.94	-360.0	1.708	00.00	13.94	.0819	0.4092				
1.669	02.45	-029.8	1.488	-01.21	02.12	.1101	0.3972				
1.869	03.48	-029.5	1.686	-01.71	03.03	.0940	0.4542				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	ϕ	RUN
2.069	02.85	-233.1	1.621	02.28	-01.71	.1104	0.4839				
0.469	00.61	-210.1	1.873	00.30	-00.52	.1411	0.9072	08	185	045	16
0.669	03.01	-135.0	1.885	-02.12	-02.12	.1387	0.9079				
1.069	05.44	-170.1	1.960	-00.93	-05.35	.1286	0.9458				
1.269	03.86	-165.7	1.993	-00.95	-03.74	.1231	0.9528				
1.669	03.74	-135.0	1.982	-02.64	-02.64	.1247	0.9490				
1.869	04.11	-186.1	1.966	00.43	-04.08	.1305	0.9682				
0.469	00.86	-179.3	1.935	-00.01	-00.86	.1306	0.9236	12	185	045	16
0.669	05.75	-194.9	1.876	01.48	-05.55	.1416	0.9139				
1.069	05.78	-169.7	1.856	-01.03	-05.68	.1481	0.9276				
1.269	07.60	-170.9	1.784	-01.20	-07.50	.1586	0.9892				
1.669	07.50	-161.5	1.877	-02.39	-07.11	.1439	0.9306				
1.869	03.88	-205.9	2.116	01.69	-03.49	.1144	1.0724				
0.469	06.79	-180.0	1.720	00.00	-06.79	.1294	0.6580	16	185	045	16
0.669	07.72	-191.6	1.846	01.56	-07.56	.1192	0.7347				
1.069	10.55	-227.0	1.884	07.75	-07.23	.1284	0.8394				
1.269	06.46	-299.3	1.639	05.63	03.17	.1290	0.5811				
1.669	11.55	-148.0	1.523	-06.18	-09.63	.1543	0.5857				
1.869	13.98	-176.5	1.577	-00.87	-13.95	.1738	0.7140				
0.469	05.27	-121.2	1.806	-04.51	-02.73	.1061	0.6152	20	185	045	16
0.669	05.58	-135.0	1.866	-03.95	-03.95	.1051	0.6683				
0.669	05.59	-135.0	1.868	-03.95	-03.95	.1049	0.6692				
1.069	08.20	-261.4	1.652	08.10	-01.23	.1104	0.5071				
1.269	05.84	-308.2	1.579	04.59	03.61	.0983	0.4051				
1.269	05.80	-308.2	1.576	04.56	03.59	.0987	0.4046				
1.669	-13.18	-294.9	2.744	00.00	00.00	.0271	0.6743				
1.869	24.69	-179.3	2.374	-00.32	-24.88	.0505	0.7100				
1.869	-06.48	000.0	2.922	00.00	00.00	.0336	1.0985				
0.469	01.38	-135.0	1.656	-00.97	-00.97	.1060	0.4898	23	185	045	16
0.669	07.09	-135.0	1.491	-05.02	-05.02	.1077	0.3902				
1.069	09.56	-271.6	1.488	09.55	00.26	.0991	0.3575				
1.269	09.16	-351.6	1.507	01.34	09.05	.0972	0.3605				
1.669	14.50	-149.2	1.660	-07.54	-12.52	.1036	0.4814				
1.869	00.08	-180.0	1.541	00.00	-00.08	.1228	0.4783				
0.469	02.14	-238.3	1.794	01.82	-01.12	.1343	0.7645	08	190	045	16
0.669	03.43	-131.7	1.688	-02.56	-02.28	.1386	0.6719				
1.069	06.92	-157.2	1.926	-02.69	-06.38	.1341	0.9354				
1.269	04.31	-163.9	1.990	-01.19	-04.14	.1242	0.9566				
1.669	03.22	-180.0	1.976	00.00	-03.22	.1278	0.9631				
1.869	04.05	-187.9	1.821	00.55	-04.01	.1377	0.8171				
0.469	03.46	-135.0	1.873	-02.44	-02.44	.1388	0.8922	12	190	045	16
0.669	05.51	-189.1	1.865	00.87	-05.44	.1405	0.8919				
1.069	05.14	-180.0	1.861	00.00	-05.14	.1397	0.8814				
1.269	07.66	-158.2	1.758	-02.85	-07.11	.1552	0.8362				
1.669	08.31	-163.0	1.865	-02.44	-07.95	.1479	0.9389				
1.869	06.35	-197.2	1.866	01.88	-06.06	.1304	0.8292				
0.469	05.57	-121.2	1.859	-04.76	-02.89	.1276	0.8027	16	190	045	16

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
0.669	04.82	-203.5	1.947	01.92	-04.42	.1243	0.8955				
1.069	17.00	-223.0	1.762	11.77	-12.60	.1388	0.7527				
1.269	29.46	-225.0	1.320	21.77	-21.77	.1528	0.4351				
1.669	26.19	-123.0	1.503	-22.41	-14.99	.1523	0.5614				
1.869	15.20	-150.1	1.637	-07.71	-13.25	.1555	0.6986				
0.469	04.63	-120.8	1.843	-03.97	-02.37	.1091	0.6698	20	190	045	16
0.669	03.22	-180.0	1.870	00.00	-03.22	.1105	0.7068				
1.069	12.71	-214.6	1.499	07.29	-10.51	.1200	0.4398				
1.269	11.62	-225.0	1.809	08.27	-08.27	.0679	0.3956				
1.669	24.70	-139.0	1.683	-16.79	-19.14	.0949	0.4566				
1.869	13.93	-135.0	1.793	-09.94	-09.94	.1103	0.6270				
0.469	01.84	-135.0	1.696	-01.30	-01.30	.1056	0.5180	23	190	045	16
0.669	03.21	-208.5	1.557	01.53	-02.62	.1072	0.4277				
1.069	19.26	-181.1	1.430	00.38	-19.25	.1097	0.3643				
1.269	07.80	-155.7	1.622	-03.22	-07.11	.0902	0.3960				
1.669	27.21	-148.9	1.784	-14.87	-23.76	.1081	0.6060				
1.869	18.47	-153.5	1.885	-08.47	-16.64	.1082	0.7081				
0.469	04.88	-135.0	1.691	-03.45	-03.45	.1286	0.6266	08	195	045	16
0.669	06.88	-120.7	1.578	-05.92	-03.52	.1364	0.5611				
1.069	07.78	-161.7	1.875	-02.45	-07.39	.1391	0.8968				
1.269	05.19	-161.9	1.956	-01.61	-04.93	.1288	0.9411				
1.669	06.26	-195.0	1.852	01.62	-06.04	.1291	0.8036				
1.869	02.98	-149.1	2.045	-01.53	-02.55	.0999	0.8380				
0.469	04.58	-151.4	1.857	-02.19	-04.02	.1370	0.8592	12	195	045	16
0.669	05.57	-135.0	1.862	-03.94	-03.94	.1371	0.8665				
1.069	09.34	-134.9	1.636	-06.64	-06.62	.1321	0.5924				
1.269	09.69	-147.7	1.624	-05.21	-08.21	.1474	0.6492				
1.669	10.34	-152.9	1.857	-04.75	-09.22	.1494	0.9370				
1.869	22.86	-202.1	1.557	09.02	-21.35	.1800	0.7183				
0.469	07.43	-119.1	1.812	-06.56	-03.51	.1269	0.7431	16	195	045	16
0.669	07.43	-195.5	1.809	01.99	-07.16	.1361	0.7929				
1.069	21.65	-211.8	1.676	11.81	-18.64	.1513	0.7206				
1.269	21.43	-234.4	1.632	17.69	-12.87	.1103	0.4917				
1.669	35.66	-138.7	1.690	-24.85	-27.79	.1337	0.6504				
1.869	28.46	-154.7	1.333	-13.04	-26.10	.1861	0.5395				
0.469	04.15	-135.0	1.774	-02.93	-02.93	.1092	0.6032	20	195	045	16
0.669	04.62	-177.2	1.796	-00.22	-04.61	.1161	0.6629				
1.069	18.04	-180.0	1.787	00.00	-18.04	.1176	0.6626				
1.269	12.07	-196.1	1.998	03.39	-11.60	.0930	0.7255				
1.669	31.89	-148.2	2.063	-18.15	-27.87	.1035	0.8934				
1.869	32.06	-147.4	1.874	-18.64	-27.81	.1266	0.8149				
0.469	04.24	-135.0	1.655	-03.00	-03.00	.1036	0.4780	23	195	045	16
0.669	05.32	-135.0	1.604	-03.76	-03.76	.1065	0.4552				
1.069	24.36	-170.6	1.418	-04.22	-24.07	.1138	0.3714				
1.269	24.34	-154.9	1.424	-10.86	-22.27	.1089	0.3587				
1.669	33.19	-145.2	1.912	-18.36	-25.53	.1052	0.7182				
1.869	30.12	-152.0	1.968	-15.23	-27.12	.1123	0.8365				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	11.28	-149.5	1.771	-05.78	-09.75	.1297	0.7130	08	200	045	16
1.069	07.60	-164.0	1.841	-02.10	-07.30	.1377	0.8423				
1.669	02.87	-082.0	2.409	-02.84	00.40	.0772	1.1454				
0.469	06.46	-180.0	1.877	00.00	-06.46	.1356	0.8770	12	200	045	16
1.069	18.06	-141.1	1.692	-11.57	-14.23	.1318	0.6426				
1.669	12.18	-144.4	1.918	-07.16	-09.95	.1276	0.8794				
0.469	08.30	-115.1	1.703	-07.52	-03.54	.1230	0.6992	16	200	045	16
1.069	19.91	-180.1	1.772	00.03	-19.91	.1393	0.7670				
1.669	29.83	-141.2	1.720	-19.76	-24.07	.1278	0.6500				
0.469	06.89	-149.6	1.559	-03.49	-05.95	.1111	0.4445	20	200	045	16
1.069	18.59	-161.3	1.653	-06.19	-17.76	.1233	0.5670				
1.669	28.53	-147.0	1.871	-16.49	-24.51	.1271	0.8142				
0.469	08.76	-122.9	1.584	-07.37	-04.78	.1045	0.4337	23	200	045	16
1.069	29.92	-153.4	1.503	-14.45	-27.22	.1093	0.4029				
1.669	31.01	-145.5	2.003	-18.80	-26.35	.1043	0.8194				
0.469	11.57	-147.6	1.875	-06.26	-09.80	.1317	0.8489	08	205	045	16
1.069	06.94	-136.7	1.917	-04.77	-05.06	.1233	0.8482				
1.669	02.97	-058.4	2.328	-02.53	01.55	.0773	1.0098				
0.469	08.11	-121.7	1.899	-06.91	-04.28	.1322	0.8841	12	205	045	16
1.069	17.04	-142.7	1.915	-10.52	-13.70	.1192	0.8172				
1.669	19.25	-144.6	1.921	-05.98	-08.38	.1220	0.8444				
0.469	08.32	-118.0	1.745	-07.35	-03.92	.1183	0.6250	16	205	045	16
1.069	17.59	-158.6	1.912	-06.59	-16.44	.1315	0.8977				
1.669	20.79	-135.1	1.715	-15.00	-15.05	.1327	0.6695				
0.469	11.19	-146.0	1.489	-06.31	-09.31	.1114	0.4026	20	205	045	16
1.069	19.55	-147.8	1.576	-10.71	-16.72	.1222	0.5012				
1.669	26.11	-145.5	1.856	-15.51	-21.99	.1248	0.7814				
0.469	13.86	-120.4	1.688	-12.01	-07.11	.1020	0.4946	23	205	045	16
1.069	26.43	-145.3	1.737	-15.79	-22.22	.1046	0.5463				
1.669	25.25	-144.9	1.893	-17.16	-23.73	.1129	0.7481				
0.469	03.04	-241.5	1.908	02.67	-01.45	.1360	0.9225	00	210	045	16
0.869	01.13	-252.3	1.972	01.07	-00.34	.1234	0.9241				
1.069	00.45	-028.3	2.049	-00.21	00.39	.1126	0.9507				
1.269	01.77	-030.1	2.068	-00.88	01.53	.1104	0.9608				
1.669	02.21	-034.5	2.106	-01.25	01.82	.1059	0.9775				
1.369	01.84	-036.6	2.072	-01.09	01.47	.1111	0.9731				
0.469	09.59	-132.1	1.980	-07.14	-06.46	.1214	0.9204	08	210	045	16
0.669	11.63	-123.7	1.862	-09.71	-06.51	.1221	0.7715				
1.069	06.15	-135.0	1.934	-04.35	-04.35	.1214	0.8572				
1.269	06.98	-180.0	2.003	00.00	-06.98	.1222	0.9605				
1.669	01.60	-060.1	2.444	-01.38	00.79	.0767	1.2010				
1.969	02.04	-090.0	2.289	-02.04	00.00	.0816	1.0032				
0.469	10.49	-120.9	1.899	-09.02	-05.43	.1265	0.8462	12	210	045	16

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	β	RUN
0.669	09.48	-146.8	1.913	-05.22	-07.95	.1283	0.8773				
1.069	14.93	-135.0	1.940	-10.67	-10.67	.1183	0.8432				
1.269	18.32	-180.0	1.713	00.00	-18.32	.1278	0.6432				
1.669	08.39	-151.6	1.761	-04.01	-07.39	.1190	0.6445				
1.869	11.17	-135.0	1.756	-07.94	-07.94	.1263	0.6788				
0.469	09.69	-122.7	1.651	-08.17	-05.27	.1160	0.5319	16	210	045	16
0.669	12.61	-133.8	1.775	-09.17	-08.80	.1312	0.7254				
1.069	17.45	-152.3	1.900	-08.31	-15.55	.1280	0.8577				
1.269	21.62	-151.9	1.794	-10.57	-19.27	.1382	0.7870				
1.669	18.27	-135.0	1.915	-13.13	-13.13	.1114	0.7638				
1.869	12.39	-180.0	1.839	00.00	-12.39	.1173	0.6851				
0.469	13.88	-180.0	1.568	00.00	-13.88	.1107	0.4487	20	210	045	16
0.669	12.66	-153.6	1.515	-05.70	-11.37	.1118	0.4192				
1.069	21.34	-138.5	1.841	-14.51	-16.31	.1132	0.6924				
1.269	23.55	-143.3	1.971	-14.59	-19.26	.1142	0.8543				
1.669	27.01	-140.6	1.804	-17.92	-21.49	.1276	0.7377				
1.869	29.57	-145.5	1.488	-17.81	-25.06	.1712	0.6179				
0.469	16.19	-120.3	1.790	-14.07	-08.33	.0986	0.5580	23	210	045	16
0.669	16.70	-136.5	1.864	-11.66	-12.27	.0993	0.6292				
1.069	25.21	-138.2	1.961	-17.42	-19.33	.1034	0.7615				
1.269	25.10	-140.2	2.051	-16.69	-19.79	.0994	0.8419				
1.669	27.44	-137.5	1.918	-19.33	-20.94	.1092	0.7528				
1.869	29.84	-144.6	1.803	-18.38	-25.06	.1222	0.7054				
0.469	09.45	-121.4	2.021	-08.08	-04.95	.1168	0.9442	08	215	045	16
1.069	06.62	-180.0	1.821	00.00	-06.62	.1218	0.7228				
1.669	08.84	-180.0	1.805	00.00	-08.84	.1220	0.7064				
0.469	12.28	-118.8	1.883	-10.79	-05.98	.1220	0.7962	12	215	045	16
1.069	13.90	-130.2	1.954	-10.70	-09.07	.1164	0.8483				
1.669	11.13	-152.9	1.766	-05.12	-09.93	.1148	0.6264				
0.469	10.56	-180.0	1.558	00.00	-10.56	.1160	0.4633	16	215	045	16
1.069	17.10	-137.5	1.905	-11.74	-12.77	.1123	0.7579				
1.669	18.57	-124.4	2.002	-15.49	-10.74	.1021	0.8018				
0.469	15.46	-124.2	1.717	-12.88	-08.83	.1069	0.5415	20	215	045	16
0.469	15.44	-124.2	1.717	-12.86	-08.82	.1069	0.5415				
1.069	22.79	-135.0	1.947	-16.54	-16.54	.1144	0.8245				
1.069	22.88	-135.0	1.943	-16.61	-16.61	.1148	0.8226				
1.669	25.40	-128.3	2.011	-20.43	-16.39	.0978	0.7785				
1.669	25.41	-128.3	2.010	-20.44	-16.40	.0979	0.7780				
0.469	19.15	-122.9	1.853	-16.25	-10.68	.0946	0.5897	23	215	045	16
1.069	25.36	-180.0	2.000	00.00	-25.36	.1032	0.8073				
1.669	29.01	-133.3	1.898	-21.97	-20.82	.1089	0.7272				
0.469	09.47	-117.9	2.039	-08.38	-04.46	.1149	0.9552	08	220	045	16
1.069	08.60	-180.0	1.915	00.00	-08.60	.1242	0.8518				
1.669	09.05	-139.9	1.990	-05.85	-06.94	.1160	0.8937				
0.469	13.38	-117.2	1.885	-11.94	-06.20	.1180	0.7726	12	220	045	16

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.069	13.82	-124.3	1.989	-11.48	-07.89	.1115	0.8572				
1.669	13.61	-133.4	1.960	-09.97	-09.44	.1153	0.8475				
0.469	12.66	-131.3	1.568	-09.57	-08.43	.1136	0.4606	16	220	045	16
1.069	18.08	-123.0	2.143	-15.31	-10.08	.0872	0.8522				
1.669	19.59	-123.5	2.019	-16.52	-11.11	.1015	0.8179				
0.469	17.11	-119.0	1.822	-15.06	-08.48	.1074	0.6379	20	220	045	16
1.069	23.96	-180.0	1.940	00.00	-23.96	.1122	0.8001				
1.669	25.13	-121.4	2.103	-21.82	-13.73	.0911	0.8371				
0.469	23.02	-126.2	1.910	-18.92	-14.08	.0941	0.6405	23	220	045	16
1.069	26.20	-129.1	1.989	-20.90	-17.24	.0991	0.7622				
1.669	29.02	-120.7	2.069	-25.50	-15.81	.0868	0.7796				
0.469	10.41	-113.3	2.023	-09.57	-04.15	.1174	0.9520	08	225	045	16
1.069	08.90	-128.7	1.951	-06.96	-05.59	.1219	0.8844				
1.669	09.90	-180.0	1.924	00.00	-09.90	.1243	0.8649				
0.469	14.38	-112.0	1.935	-13.37	-05.48	.1115	0.7890	12	225	045	16
1.069	14.21	-121.8	2.030	-12.14	-07.60	.1075	0.8810				
1.669	14.55	-125.1	1.977	-11.98	-08.48	.1158	0.8744				
0.469	14.84	-121.0	1.685	-12.79	-07.77	.1098	0.5301	16	225	045	16
1.069	18.87	-118.2	2.110	-16.76	-09.17	.0913	0.8478				
1.669	20.31	-120.7	2.071	-17.65	-10.70	.1029	0.8990				
0.469	18.67	-116.4	1.879	-16.93	-08.54	.1054	0.6837	20	225	045	16
1.069	22.69	-122.5	2.053	-19.42	-12.66	.0930	0.7901				
1.669	25.36	-119.0	2.085	-22.51	-12.94	.0936	0.8359				
0.469	23.69	-127.8	1.962	-19.12	-15.05	.0941	0.6934	23	225	045	16
1.069	27.85	-123.4	1.949	-23.80	-16.21	.0888	0.6420				
1.669	31.35	-116.7	2.222	-28.55	-15.30	.0755	0.8355				
0.469	01.12	-135.0	1.901	-00.79	-00.79	.1381	0.9267	00	240	045	16
1.069	01.06	-225.0	2.038	00.74	-00.74	.1122	0.9400				
1.669	02.73	-315.0	2.097	01.93	01.93	.1071	0.9750				
0.469	10.07	-097.0	2.030	-09.99	-01.24	.1160	0.9508	08	240	045	16
1.069	09.81	-119.9	1.976	-08.52	-04.32	.1206	0.9090				
1.669	11.40	-117.2	1.887	-10.16	-05.26	.1358	0.8919				
0.469	15.10	-096.0	2.039	-15.02	-01.61	.1047	0.8708	12	240	045	16
1.069	15.28	-106.9	2.051	-14.64	-04.54	.1084	0.9178				
1.669	15.86	-116.4	1.968	-14.27	-07.20	.1222	0.9102				
0.469	19.11	-093.2	2.164	-19.08	-01.10	.0813	0.8220	16	240	045	16
1.069	19.11	-105.6	2.139	-18.45	-05.32	.0911	0.8857				
1.669	21.75	-113.2	2.037	-20.13	-08.93	.1093	0.9061				
0.469	24.68	-103.0	2.050	-24.12	-05.90	.0770	0.6517	20	240	045	16
1.069	25.05	-103.7	2.145	-25.30	-06.57	.0781	0.7664				
1.669	29.83	-103.7	2.186	-29.12	-07.73	.0883	0.9235				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_0 = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
0.469	22.38	-118.7	2.033	-19.85	-11.18	.0841	0.6923	23	240	045	16
1.069	26.58	-092.0	2.178	-26.56	-01.00	.0811	0.8378				
1.669	31.32	-100.1	2.242	-30.92	-06.09	.0847	0.9675				
0.269	00.57	-147.1	1.959	-00.30	-00.47	.1233	0.9047	00	000	000	17
0.869	00.94	-028.4	2.067	-00.44	00.82	.1103	0.9581				
1.469	02.83	-360.0	2.174	00.00	02.83	.0997	1.0231				
2.069	00.22	-090.0	2.063	-00.22	00.00	.1169	1.0087				
0.269	04.98	-340.3	2.049	01.68	04.69	.1154	0.9739	08	000	000	17
0.869	04.73	-360.0	1.907	00.00	04.73	.1322	0.8956				
1.469	06.19	-358.8	1.904	00.13	06.18	.1403	0.9459				
2.069	03.49	-360.0	1.847	00.00	03.49	.1569	0.9688				
0.269	06.41	-338.6	1.952	02.34	05.97	.1321	0.9591	12	000	000	17
0.869	06.79	-360.0	1.850	00.00	06.79	.1466	0.9096				
1.469	07.98	-355.4	1.823	00.64	07.95	.1588	0.9450				
2.069	05.49	-360.0	1.781	00.00	05.49	.1744	0.9736				
0.269	07.00	-337.8	1.847	02.65	06.48	.1558	0.9618	16	000	000	17
0.869	08.49	-354.7	1.787	00.79	08.45	.1645	0.9268				
1.469	09.46	-355.9	1.752	00.68	09.43	.1788	0.9550				
2.069	07.53	-360.0	1.715	00.00	07.53	.1938	0.9782				
0.269	07.70	-337.5	1.679	02.96	07.12	.2007	0.9596	23	000	000	17
0.869	12.23	-354.8	1.680	01.12	12.18	.2012	0.9635				
1.469	12.56	-353.3	1.619	01.48	12.47	.2190	0.9572				
2.069	11.13	-360.0	1.576	00.00	11.13	.2367	0.9710				
0.269	06.82	-360.0	2.038	00.00	06.82	.1163	0.9653	08	015	000	17
0.869	06.34	-329.3	1.920	03.24	05.45	.1307	0.9030				
1.469	07.57	-328.2	1.916	04.00	06.44	.1384	0.9507				
2.069	04.72	-324.1	1.878	02.77	03.82	.1513	0.9801				
0.269	09.17	-312.7	1.965	06.76	06.24	.1291	0.9563	12	015	000	17
0.869	10.21	-328.6	1.905	05.36	08.73	.1388	0.9367				
1.469	09.48	-328.5	1.841	04.98	08.10	.1559	0.9538				
2.069	06.89	-327.6	1.815	03.70	05.82	.1672	0.9834				
0.269	10.23	-311.8	1.864	07.66	06.85	.1513	0.9591	16	015	000	17
0.869	11.94	-328.0	1.835	06.39	10.16	.1568	0.9506				
1.469	11.33	-328.2	1.777	06.02	09.66	.1734	0.9616				
2.069	08.77	-328.5	1.744	04.60	07.49	.1861	0.9817				
0.269	11.60	-308.8	1.709	09.08	07.32	.1931	0.9660	23	015	000	17
0.869	14.39	-327.1	1.708	07.93	12.15	.1932	0.9655				
1.469	14.12	-326.6	1.659	07.88	11.86	.2076	0.9635				
2.069	12.03	-328.6	1.618	06.33	10.30	.2235	0.9758				
0.269	-00.04	-059.6	1.954	00.00	00.00	.1314	0.9570	00	030	000	17
0.669	00.34	-090.0	1.991	-00.34	00.00	.1256	0.9697				
0.869	01.04	-017.0	1.996	-00.30	00.99	.1264	0.9830				
1.269	-00.52	-135.0	1.992	00.00	00.00	.1271	0.9825				
1.469	-00.13	-135.0	1.921	00.00	00.00	.1369	0.9473				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.869	03.58	-315.0	2.150	02.53	02.53	.1019	1.0080				
2.069	02.47	-315.0	2.076	01.74	01.74	.1118	0.9853				
0.269	07.74	-298.8	2.000	06.79	03.74	.1192	0.9327	08	030	000	17
0.669	09.20	-303.3	2.029	07.70	05.08	.1151	0.9425				
0.869	10.43	-309.6	2.019	08.07	06.69	.1157	0.9320				
1.269	08.93	-305.4	2.045	07.29	05.20	.1165	0.9777				
1.469	09.54	-306.5	1.954	07.69	05.70	.1281	0.9336				
1.869	08.13	-360.0	1.923	00.00	08.13	.1386	0.9622				
2.069	06.62	-360.0	1.892	00.00	06.62	.1459	0.9652				
0.269	12.83	-297.1	2.006	11.46	05.92	.1200	0.9479	12	030	000	17
0.669	12.83	-305.3	1.971	10.52	07.49	.1234	0.9229				
0.869	12.70	-311.0	1.938	09.65	08.41	.1291	0.9176				
1.269	11.10	-308.7	1.962	08.70	06.99	.1304	0.9613				
1.469	11.44	-310.8	1.882	08.70	07.53	.1445	0.9419				
1.869	09.89	-360.0	1.850	00.00	09.89	.1559	0.9671				
2.069	08.59	-360.0	1.827	00.00	08.59	.1616	0.9674				
0.269	14.59	-296.9	1.914	13.06	06.71	.1384	0.9478	16	030	000	17
0.669	14.44	-305.3	1.882	11.86	08.46	.1427	0.9299				
0.869	14.17	-307.9	1.849	11.26	08.81	.1485	0.9196				
1.269	12.85	-312.5	1.869	09.54	08.76	.1497	0.9564				
1.469	13.53	-310.1	1.807	10.42	08.81	.1627	0.9450				
1.869	11.79	-360.0	1.777	00.00	11.79	.1744	0.9672				
2.069	10.65	-313.9	1.757	07.71	07.42	.1798	0.9676				
0.269	16.71	-296.4	1.774	15.05	07.60	.1738	0.9597	23	030	000	17
0.669	16.67	-307.0	1.728	13.44	10.21	.1827	0.9405				
0.869	17.03	-311.1	1.709	12.99	11.38	.1873	0.9369				
1.269	15.23	-360.0	1.731	00.00	15.23	.1868	0.9663				
1.469	16.28	-310.8	1.655	12.46	10.80	.2048	0.9451				
1.869	14.59	-360.0	1.663	00.00	14.59	.2068	0.9653				
2.069	13.77	-311.3	1.642	10.43	09.18	.2132	0.9645				
0.269	09.33	-285.0	1.955	09.01	02.43	.1303	0.9509	08	045	000	17
0.669	08.82	-295.9	1.955	07.94	03.87	.1274	0.9294				
0.869	08.50	-297.1	1.927	07.57	03.89	.1321	0.9230				
1.269	06.84	-298.3	1.940	06.02	03.25	.1343	0.9578				
1.469	12.06	-299.2	1.984	10.56	05.95	.1211	0.9246				
1.869	10.86	-299.0	2.008	09.52	05.31	.1211	0.9594				
2.069	09.42	-297.9	1.976	08.34	04.43	.1265	0.9537				
0.269	14.33	-288.5	1.973	13.61	04.63	.1246	0.9347	12	045	000	17
0.669	11.81	-288.7	1.980	11.20	03.83	.1249	0.9469				
0.869	15.26	-296.6	1.981	13.70	06.96	.1171	0.8894				
1.269	14.06	-299.5	1.998	12.29	07.03	.1202	0.9377				
1.469	14.54	-298.8	1.927	12.80	07.12	.1317	0.9199				
1.869	13.04	-298.7	1.932	11.48	06.34	.1352	0.9518				
2.069	11.59	-297.3	1.903	10.32	05.37	.1409	0.9484				
0.269	20.32	-283.0	2.039	19.84	04.76	.1150	0.9559	16	045	000	17
0.669	18.14	-293.2	1.971	16.75	07.35	.1226	0.9170				
0.869	17.54	-297.5	1.926	15.66	08.30	.1300	0.9071				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

x	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
1.269	15.85	-298.2	1.927	14.04	07.64	.1346	0.9404				
1.469	16.41	-298.4	1.897	14.52	07.97	.1407	0.9388				
1.869	14.92	-293.5	1.872	13.17	07.24	.1485	0.9530				
2.069	13.63	-296.5	1.829	12.24	06.17	.1575	0.9462				
0.269	22.52	-281.8	1.879	22.09	04.84	.1466	0.9511	23	045	000	17
0.669	20.74	-293.2	1.789	19.19	08.48	.1627	0.9193				
0.869	20.34	-297.6	1.748	18.18	09.74	.1717	0.9116				
1.269	18.73	-296.3	1.812	16.90	08.54	.1624	0.9506				
1.869	18.31	-298.5	1.752	16.21	08.97	.1786	0.9536				
2.069	16.90	-296.3	1.711	15.23	07.66	.1884	0.9457				
0.269	-00.60	-225.0	1.934	00.00	00.00	.1335	0.9427	00	060	000	17
0.469	-00.18	-180.0	1.896	00.00	00.00	.1377	0.9172				
0.669	-00.25	-119.8	1.901	00.00	00.00	.1388	0.9314				
0.869	00.16	-135.1	1.890	-00.09	00.13	.1402	0.9253				
1.069	-00.10	-205.7	1.949	00.00	00.00	.1319	0.9533				
1.269	-00.60	-135.0	1.897	00.00	00.00	.1376	0.9178				
1.469	-00.40	-239.9	1.902	00.00	00.00	.1381	0.9282				
1.669	00.17	-135.0	1.926	-00.12	-00.12	.1367	0.9535				
1.869	00.30	-239.6	1.907	00.25	-00.15	.1397	0.9463				
2.069	00.36	-168.7	1.924	-00.07	-00.35	.1380	0.9599				
0.269	11.05	-225.0	2.004	07.86	-07.86	.1208	0.9517	08	060	000	17
0.469	09.89	-270.0	1.987	09.89	00.00	.1217	0.9334				
0.669	09.59	-225.0	1.960	06.80	-06.80	.1232	0.9056				
0.869	09.59	-275.7	1.935	09.54	00.96	.1271	0.8994				
1.069	09.64	-270.0	1.905	09.64	00.00	.1324	0.8936				
1.269	09.33	-225.0	1.935	06.62	-06.62	.1302	0.9208				
1.469	09.47	-225.0	1.923	06.72	-06.72	.1324	0.9198				
1.669	09.65	-270.0	1.933	09.65	00.00	.1326	0.9351				
1.869	10.06	-273.6	1.934	10.04	00.63	.1342	0.9474				
2.069	08.90	-270.0	1.932	08.90	00.00	.1358	0.9559				
0.269	16.63	-272.2	2.090	16.61	00.65	.1092	0.9835	12	060	000	17
0.469	15.12	-225.0	1.988	10.81	-10.81	.1181	0.9068				
0.669	14.60	-272.5	1.964	14.58	00.65	.1207	0.8930				
0.869	14.22	-276.5	1.933	14.13	01.64	.1267	0.8934				
1.069	14.19	-225.0	1.906	10.13	-10.13	.1321	0.8931				
1.269	13.28	-270.4	1.931	13.27	00.09	.1311	0.9214				
1.469	13.50	-225.0	1.919	09.63	-09.63	.1336	0.9224				
1.669	12.85	-270.0	1.950	12.85	00.00	.1309	0.9480				
1.869	17.00	-290.3	2.108	16.00	06.05	.1057	0.9783				
2.069	15.73	-283.4	2.045	15.32	03.73	.1147	0.9623				
0.269	24.78	-225.0	2.148	18.07	-18.07	.0951	0.9374	16	060	000	17
0.469	21.84	-225.0	2.024	15.82	-15.82	.1059	0.8595				
0.669	21.85	-273.1	2.015	21.82	01.24	.1085	0.8689				
0.869	21.68	-277.4	2.012	21.51	02.93	.1113	0.8873				
1.069	21.08	-225.0	1.979	15.24	-15.24	.1159	0.8778				
1.269	20.54	-279.6	2.051	20.27	03.57	.1098	0.9297				
1.469	21.04	-280.8	2.062	20.69	04.12	.1107	0.9540				
1.669	19.25	-272.6	2.062	19.23	00.90	.1120	0.9650				
1.869	19.52	-288.8	2.030	18.55	06.51	.1173	0.9612				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
2.069	18.35	-279.6	2.020	18.10	03.16	.1208	0.9749				
0.269	28.42	-225.0	1.992	20.93	-20.93	.1209	0.9341	23	060	000	17
0.469	26.30	-225.0	1.904	19.26	-19.26	.1324	0.8921				
0.669	24.59	-273.2	1.826	24.55	01.46	.1461	0.8734				
0.869	24.52	-273.6	1.841	24.47	01.64	.1452	0.8880				
1.069	24.10	-225.0	1.818	17.55	-17.55	.1469	0.8792				
1.269	23.17	-274.6	1.894	23.10	01.96	.1385	0.9195				
1.469	24.08	-276.9	1.910	23.92	03.07	.1390	0.9459				
1.669	22.27	-270.5	1.905	22.26	00.20	.1408	0.9503				
1.869	24.14	-285.6	1.855	23.34	06.87	.1489	0.9310				
2.069	22.11	-276.0	1.881	22.00	02.43	.1462	0.9518				
0.269	11.96	-225.0	2.009	08.51	-08.51	.1174	0.9311	08	070	000	17
0.869	09.47	-270.0	1.920	09.47	00.00	.1271	0.8782				
1.469	09.49	-258.3	1.906	09.29	-01.94	.1327	0.8976				
2.069	09.91	-260.4	1.912	09.77	-01.66	.1373	0.9374				
0.269	17.93	-225.0	2.130	12.88	-12.88	.1009	0.9670	12	070	000	17
0.869	15.08	-270.0	1.954	15.08	00.00	.1186	0.8641				
1.469	14.93	-269.5	1.960	14.92	-00.13	.1225	0.9010				
2.069	14.82	-269.9	1.967	14.82	-00.02	.1258	0.9348				
0.269	27.82	-270.0	2.064	27.82	00.00	.0917	0.7935	16	070	000	17
0.869	18.89	-225.0	1.978	13.60	-13.60	.1188	0.8975				
1.469	20.53	-225.0	2.014	15.05	-15.05	.1064	0.8509				
2.069	21.39	-225.0	2.069	15.48	-15.48	.1048	0.9129				
0.269	32.49	-270.0	2.101	32.49	00.00	.1006	0.9213	23	070	000	17
0.869	27.98	-270.0	1.871	27.98	00.00	.1310	0.8392				
1.469	26.44	-270.0	1.929	26.44	00.00	.1263	0.8853				
2.069	26.13	-270.0	1.925	26.13	00.00	.1278	0.8899				
2.069	00.03	-135.0	1.900	-00.02	-00.02	.1389	0.9303	00	075	000	17
0.269	11.74	-270.0	2.007	11.74	00.00	.1170	0.9254	08	075	000	17
0.469	10.79	-259.0	1.980	10.59	-02.08	.1197	0.9076				
0.669	10.04	-258.9	1.933	09.85	-01.95	.1244	0.8771				
0.869	08.66	-270.0	1.880	08.66	00.00	.1313	0.8534				
1.069	09.44	-246.8	1.867	08.68	-03.74	.1340	0.8534				
1.269	09.43	-251.5	1.902	08.95	-03.01	.1306	0.8780				
1.469	09.53	-248.4	1.904	08.87	-03.53	.1321	0.8905				
1.669	10.62	-244.8	1.911	09.62	-04.56	.1338	0.9116				
1.869	10.66	-263.7	1.922	10.59	-01.18	.1343	0.9312				
2.069	10.07	-248.7	1.922	09.39	-03.69	.1360	0.9428				
0.269	18.62	-270.0	2.161	18.62	00.00	.0961	0.9671	12	075	000	17
0.469	17.23	-267.3	2.094	17.21	-00.83	.1013	0.9183				
0.669	16.10	-265.9	2.028	16.06	-01.18	.1081	0.8829				
0.869	15.21	-268.9	1.963	15.20	-00.29	.1156	0.8542				
1.069	16.01	-250.7	1.949	15.15	-05.41	.1192	0.8609				
1.269	15.70	-261.6	1.979	15.53	-02.35	.1176	0.8909				
1.469	15.21	-256.4	1.969	14.80	-03.65	.1203	0.8972				
1.669	15.93	-251.4	1.952	15.13	-05.20	.1244	0.9033				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
1.869	15.44	-270.0	1.977	15.44	00.00	.1239	0.9358				
2.069	15.26	-256.6	1.947	14.86	-03.61	.1290	0.9300				
0.269	25.13	-258.8	1.807	24.70	-05.20	.1094	0.6355	16	075	000	17
0.469	21.57	-270.0	2.115	21.57	00.00	.1001	0.9371				
0.669	20.78	-270.0	1.993	20.78	00.00	.1128	0.8729				
0.869	20.34	-270.0	1.966	20.34	00.00	.1171	0.8696				
1.069	21.10	-251.8	1.943	20.13	-06.87	.1209	0.8659				
1.269	20.86	-262.9	2.019	20.71	-02.69	.1138	0.9165				
1.469	20.21	-260.9	2.028	19.97	-03.33	.1138	0.9293				
1.669	21.39	-254.8	2.037	20.70	-05.86	.1143	0.9469				
1.869	19.11	-270.0	2.123	19.11	00.00	.1058	1.0035				
2.069	22.83	-270.0	2.100	22.83	00.00	.0981	0.8972				
0.269	33.82	-269.8	2.150	33.81	-00.13	.0924	0.9143	23	075	000	17
0.469	32.77	-264.1	2.030	32.63	-03.78	.1052	0.8619				
0.669	30.23	-266.3	1.948	30.17	-02.15	.1168	0.8434				
0.869	30.64	-263.7	1.999	30.48	-03.71	.1127	0.8806				
1.069	30.61	-252.9	1.963	29.48	-09.86	.1169	0.8639				
1.269	30.75	-264.1	2.071	30.61	-03.49	.1064	0.9294				
1.469	28.71	-266.4	1.961	28.66	-01.97	.1186	0.8739				
1.669	30.18	-260.6	2.089	29.84	-05.42	.1074	0.9654				
1.869	28.84	-225.0	2.011	21.27	-21.27	.1144	0.9107				
2.069	28.97	-269.4	1.977	28.96	-00.33	.1173	0.8860				
0.269	11.97	-270.0	2.007	11.97	00.00	.1161	0.9181	08	080	000	17
0.869	08.61	-264.2	1.871	08.56	-00.87	.1329	0.8513				
1.469	10.13	-243.7	1.909	09.10	-04.52	.1281	0.8708				
2.069	11.00	-245.8	1.930	10.05	-04.55	.1331	0.9344				
0.269	19.19	-270.0	2.177	19.19	00.00	.0929	0.9586	12	080	000	17
0.869	15.45	-260.5	1.951	15.24	-02.61	.1156	0.8386				
1.469	15.42	-249.7	1.958	14.50	-05.46	.1192	0.8739				
2.069	15.78	-250.3	1.951	14.89	-05.44	.1270	0.9212				
0.269	26.23	-264.0	1.638	26.10	-02.94	.1255	0.5643	16	080	000	17
0.869	21.89	-263.9	1.965	21.77	-02.44	.1135	0.8410				
1.469	21.45	-254.1	2.039	20.70	-06.14	.1091	0.9064				
2.069	22.11	-256.8	2.032	21.58	-05.30	.1123	0.9240				
0.269	36.09	-267.6	2.167	36.06	-01.74	.0867	0.8806	23	080	000	17
0.869	32.18	-257.6	1.918	31.57	-07.69	.1162	0.8007				
1.469	31.86	-259.5	2.104	31.42	-06.46	.1004	0.9240				
2.069	32.81	-262.6	2.055	32.59	-04.74	.1050	0.8945				
0.269	11.57	-270.0	1.996	11.57	00.00	.1160	0.9024	08	085	000	17
0.869	07.81	-259.0	1.846	07.66	-01.49	.1348	0.8308				
1.469	10.37	-239.4	1.918	08.95	-05.32	.1244	0.8573				
2.069	12.35	-242.0	1.924	10.94	-05.86	.1312	0.9126				
0.269	19.42	-270.0	2.190	19.42	00.00	.0906	0.9548	12	085	000	17
0.869	14.79	-251.2	1.944	14.03	-04.86	.1160	0.8319				
1.469	15.37	-243.5	1.964	13.82	-06.99	.1157	0.8563				
2.069	16.59	-244.8	1.994	15.08	-07.22	.1197	0.9276				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.269	24.88	-270.0	2.052	24.88	00.00	.0976	0.8283	16	085	000	17
0.869	22.40	-256.4	2.012	21.83	-05.53	.1066	0.8500				
1.469	21.08	-247.4	2.060	19.58	-08.42	.1058	0.9090				
2.069	21.53	-248.5	1.999	20.15	-08.22	.1171	0.9146				
0.269	37.23	-264.6	2.275	37.10	-04.09	.0750	0.9013	23	085	000	17
0.869	33.87	-252.7	1.978	32.65	-11.28	.1056	0.7988				
1.469	33.78	-252.9	2.107	32.59	-11.12	.0961	0.8884				
2.069	35.20	-256.5	2.119	34.44	-09.35	.0948	0.8941				
0.269	-00.17	-059.8	1.767	00.00	00.00	.1364	0.7450	00	090	000	17
0.469	-00.33	-030.1	1.699	00.00	00.00	.1415	0.6976				
0.669	-00.34	-210.6	1.732	00.00	00.00	.1433	0.7421				
0.869	00.97	-045.0	1.809	-00.68	00.68	.1364	0.7946				
1.069	-00.58	-090.0	1.770	00.00	00.00	.1399	0.7678				
1.269	-00.32	-030.6	1.704	00.00	00.00	.1398	0.6942				
1.469	00.83	-030.0	1.743	-00.41	00.71	.1380	0.7271				
1.669	-00.20	-120.2	1.778	00.00	00.00	.1445	0.8028				
1.869	-00.17	-223.0	1.864	00.00	00.00	.1400	0.8871				
2.069	-00.45	-090.0	1.934	00.00	00.00	.1354	0.9564				
0.269	11.16	-267.1	1.990	11.14	-00.57	.1163	0.8959	08	090	000	17
0.469	09.71	-248.7	1.948	09.05	-03.55	.1200	0.8665				
0.669	08.72	-244.5	1.915	07.88	-03.77	.1252	0.8586				
0.869	08.16	-247.3	1.860	07.53	-03.16	.1334	0.8403				
1.069	09.53	-225.0	1.833	06.77	-06.77	.1306	0.7891				
1.269	08.86	-237.3	1.890	07.47	-04.81	.1241	0.8192				
1.469	10.02	-233.2	1.904	08.05	-06.04	.1240	0.8357				
1.669	12.37	-232.2	1.897	09.83	-07.65	.1268	0.8456				
1.869	12.69	-239.9	1.928	11.02	-06.44	.1256	0.8791				
2.069	12.85	-239.2	1.916	11.08	-06.66	.1313	0.9014				
0.269	18.72	-270.0	2.170	18.72	00.00	.0922	0.9407	12	090	000	17
0.469	16.77	-257.0	2.085	16.36	-03.87	.0992	0.8863				
0.669	15.23	-251.5	1.994	14.47	-04.93	.1092	0.8463				
0.869	14.49	-247.6	1.925	13.43	-05.62	.1164	0.8104				
1.069	15.51	-239.3	1.883	13.42	-08.06	.1207	0.7877				
1.269	14.61	-242.5	1.929	13.01	-06.86	.1159	0.8124				
1.469	14.52	-239.7	1.914	12.60	-07.44	.1181	0.8088				
1.669	16.48	-238.3	1.940	14.12	-08.83	.1185	0.8453				
1.869	16.78	-243.9	1.986	15.15	-07.55	.1155	0.8843				
2.069	16.98	-241.3	1.956	14.99	-08.34	.1217	0.8893				
0.269	25.73	-269.3	2.114	25.72	-00.33	.0921	0.8608	16	090	000	17
0.469	23.10	-255.4	2.150	22.42	-06.13	.0930	0.9197				
0.669	22.27	-245.6	1.999	20.45	-09.60	.1046	0.8172				
0.869	22.08	-251.1	2.021	20.99	-07.48	.1035	0.8367				
1.069	22.48	-241.5	2.019	19.98	-11.16	.1071	0.8635				
1.269	21.30	-244.9	2.035	19.44	-09.39	.1053	0.8701				
1.469	20.60	-243.7	2.037	18.62	-09.45	.1065	0.8827				
1.669	22.49	-241.8	1.988	20.04	-11.07	.1131	0.8683				
1.869	22.87	-250.4	2.061	21.67	-08.05	.1072	0.9218				
2.069	22.34	-244.8	1.974	20.39	-09.92	.1165	0.8763				
0.269	39.56	-261.9	2.401	39.27	-06.63	.0638	0.9341	23	090	000	17

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

γ	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
0.469	34.98	-252.9	1.961	33.77	-11.62	.0935	0.6881				
0.669	36.28	-249.8	1.932	34.56	-14.22	.1036	0.7300				
0.869	36.16	-249.0	1.872	34.30	-14.67	.1112	0.7141				
1.069	34.34	-242.5	2.011	31.21	-17.50	.1018	0.8104				
1.269	36.19	-245.7	1.909	33.69	-16.75	.1071	0.7274				
1.469	35.41	-248.7	2.130	33.51	-14.48	.0884	0.8472				
1.669	35.50	-246.5	2.078	33.19	-15.87	.0938	0.8280				
1.869	36.13	-260.4	2.290	35.74	-06.94	.0787	0.9692				
2.069	36.72	-252.2	2.107	35.38	-12.84	.0916	0.8465				
0.269	11.11	-262.5	1.974	11.01	-01.46	.1160	0.8718	08	095	000	17
0.869	07.93	-240.7	1.851	06.92	-03.90	.1284	0.7979				
1.469	09.35	-220.5	1.865	06.10	-07.13	.1214	0.7707				
2.069	17.34	-234.5	1.964	14.26	-10.27	.1187	0.8781				
0.269	18.96	-266.6	2.177	18.93	-01.09	.0923	0.9526	12	095	000	17
0.669	14.21	-243.9	1.941	12.81	-06.35	.1128	0.8049				
1.469	14.00	-235.2	1.893	11.57	-08.09	.1177	0.7798				
2.069	19.12	-235.9	1.947	16.01	-10.99	.1171	0.8439				
0.269	26.66	-267.7	2.156	26.64	-01.15	.0854	0.8530	16	095	000	17
0.869	21.26	-244.7	2.038	19.37	-09.44	.1006	0.8359				
1.469	20.95	-239.4	2.027	18.23	-11.02	.1037	0.8460				
2.069	22.65	-241.4	1.972	20.12	-11.29	.1142	0.8556				
0.269	39.86	-260.0	2.488	39.42	-08.24	.0561	0.9416	23	095	000	17
0.869	36.03	-245.4	1.811	33.47	-16.84	.1121	0.6548				
1.469	29.16	-244.5	2.114	26.73	-13.50	.0974	0.9100				
2.069	31.63	-243.7	2.072	28.90	-15.26	.1022	0.8946				
0.269	10.41	-257.1	1.952	10.15	-02.34	.1168	0.8478	08	100	000	17
0.669	08.84	-240.7	1.894	07.72	-04.35	.1224	0.8126				
0.869	07.36	-238.6	1.811	06.29	-03.85	.1261	0.7366				
1.269	05.15	-240.2	1.766	04.47	-02.56	.1266	0.6907				
1.469	04.93	-213.2	2.002	02.70	-04.12	.1198	0.9405				
1.869	21.00	-216.4	2.223	12.83	-17.17	.0869	0.9629				
2.069	22.27	-240.4	1.962	19.59	-11.43	.1098	0.8103				
0.269	18.53	-266.4	2.172	18.49	-01.20	.0931	0.9529	12	100	000	17
0.669	14.60	-246.5	1.993	13.43	-05.93	.1053	0.8151				
0.869	13.48	-242.5	1.935	12.00	-06.31	.1114	0.7877				
1.269	12.15	-237.4	1.821	10.28	-06.61	.1168	0.6929				
1.469	13.76	-225.1	1.851	09.84	-09.80	.1131	0.7028				
1.869	16.77	-224.9	2.036	12.00	-12.04	.1030	0.8531				
2.069	23.28	-230.9	1.919	18.46	-15.18	.1107	0.7638				
0.269	26.39	-268.5	2.165	26.38	-00.74	.0811	0.8205	16	100	000	17
0.669	23.36	-236.2	1.892	19.74	-13.51	.1135	0.7514				
0.869	20.25	-241.7	2.044	17.99	-09.92	.1000	0.8373				
1.269	21.15	-238.9	2.001	18.32	-11.30	.1014	0.7949				
1.469	20.52	-235.3	2.015	17.10	-12.02	.1000	0.8014				
1.869	22.45	-241.9	2.012	20.02	-11.01	.1048	0.8356				
2.069	23.48	-237.1	1.957	20.03	-13.27	.1103	0.8074				
0.269	39.75	-244.0	2.084	36.77	-20.03	.0756	0.6744	23	100	000	17

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	ϕ	RUN
0.669	36.52	-244.7	1.894	33.80	-17.56	.0952	0.6320				
0.869	36.10	-243.2	1.763	33.05	-18.20	.1103	0.5992				
1.269	32.36	-242.1	2.066	29.24	-16.51	.0977	0.8471				
1.469	30.88	-240.5	2.153	27.49	-16.40	.0898	0.8925				
1.869	32.68	-246.7	2.153	30.50	-14.23	.0917	0.9115				
2.069	32.39	-241.0	1.979	29.02	-17.09	.1062	0.8039				
0.269	09.70	-253.5	1.943	09.30	-02.78	.1171	0.8385	08	105	000	17
0.469	08.74	-243.4	1.905	07.82	-03.93	.1174	0.7926				
0.669	08.69	-240.6	1.885	07.58	-04.29	.1208	0.7906				
0.869	07.44	-240.5	1.796	06.48	-03.67	.1238	0.7069				
1.069	05.28	-243.8	2.023	04.74	-02.33	.1186	0.9621				
1.269	05.00	-268.5	1.979	04.99	-00.13	.1254	0.9496				
1.469	01.67	-225.0	2.010	01.18	-01.18	.1219	0.9689				
1.669	06.36	-117.7	2.064	-05.63	-02.96	.1013	0.8755				
2.069	24.07	-270.0	2.057	24.07	00.00	.0990	0.8464				
0.269	17.89	-263.1	2.180	17.76	-02.22	.0945	0.9790	12	105	000	17
0.469	15.12	-250.4	2.024	14.28	-05.17	.1047	0.8504				
0.669	13.08	-242.6	1.945	11.65	-06.10	.1093	0.7850				
0.869	12.79	-241.8	1.917	11.31	-06.12	.1099	0.7562				
1.069	13.51	-233.3	1.760	10.90	-08.17	.1138	0.6153				
1.269	09.78	-236.0	1.733	08.13	-05.50	.1148	0.5957				
1.469	10.57	-212.1	1.809	05.66	-08.98	.1114	0.6489				
1.669	13.04	-206.8	1.979	05.96	-11.68	.1096	0.8299				
1.869	17.46	-206.0	2.320	07.85	-15.78	.0836	1.0785				
2.069	24.74	-225.0	2.049	18.05	-18.05	.1010	0.8523				
0.269	26.10	-266.4	2.143	26.05	-01.76	.0811	0.7931	16	105	000	17
0.469	22.95	-239.0	1.984	19.95	-12.30	.1042	0.7955				
0.669	21.51	-235.5	1.985	17.99	-12.58	.1032	0.7893				
0.869	19.95	-238.9	2.033	17.26	-10.61	.0993	0.8181				
1.069	25.16	-232.9	1.713	20.53	-15.81	.1142	0.5748				
1.269	20.14	-236.5	1.971	17.00	-11.44	.0998	0.7466				
1.469	20.00	-231.4	1.955	15.87	-12.79	.0996	0.7270				
1.669	21.82	-230.6	1.865	17.19	-14.25	.1081	0.6858				
1.869	22.54	-236.7	1.991	19.13	-12.83	.0998	0.7698				
2.069	24.95	-232.7	1.884	20.30	-15.74	.1093	0.7141				
0.269	38.40	-237.9	1.912	33.87	-22.83	.0945	0.6452	23	105	000	17
0.469	36.89	-247.2	1.887	34.67	-16.21	.0838	0.5503				
0.669	36.66	-242.6	1.940	33.45	-18.90	.0847	0.6036				
0.869	36.34	-241.2	1.733	32.80	-19.51	.1067	0.5533				
1.069	34.83	-237.5	1.880	30.40	-20.49	.1070	0.6953				
1.269	32.69	-240.1	2.061	29.08	-17.73	.0931	0.8003				
1.469	31.18	-238.4	2.140	27.26	-17.59	.0859	0.8353				
1.669	33.01	-237.9	2.009	28.82	-19.04	.0997	0.7906				
1.869	32.44	-243.6	2.120	29.65	-15.78	.0893	0.8435				
2.069	32.78	-238.7	1.949	28.82	-18.49	.1047	0.7566				
0.269	09.10	-249.5	1.897	08.53	-03.21	.1173	0.7825	08	110	000	17
0.669	08.70	-244.6	1.799	07.87	-03.75	.1196	0.6859				
0.869	06.49	-249.6	1.715	06.08	-02.27	.1239	0.6255				
1.269	05.64	-270.0	1.991	05.64	00.00	.1237	0.9544				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
1.469	03.62	-300.9	1.994	03.10	01.86	.1244	0.9642				
1.869	12.58	-328.8	1.887	06.59	10.80	.1124	0.7381				
2.069	18.17	-293.1	2.011	16.79	07.33	.1084	0.8629				
0.269	17.44	-256.2	2.118	16.96	-04.28	.0989	0.9303	12	110	000	17
0.669	12.93	-243.5	1.925	11.61	-05.84	.1088	0.7577				
0.869	11.55	-240.9	1.869	10.12	-05.67	.1080	0.6897				
1.269	08.52	-240.0	1.747	07.39	-04.28	.1118	0.5925				
1.469	07.07	-225.0	2.030	05.02	-05.02	.1119	0.9175				
1.869	18.72	-154.9	2.250	-08.18	-17.06	.0607	0.7021				
2.069	31.16	-241.7	1.752	28.03	-15.99	.0668	0.3567				
0.269	25.46	-264.2	2.106	25.34	-02.75	.0826	0.7624	16	110	000	17
0.669	19.63	-236.6	2.065	16.58	-11.10	.0951	0.8229				
0.869	19.47	-235.7	2.047	16.28	-11.26	.0961	0.8087				
1.269	19.81	-233.4	1.971	16.12	-12.12	.0986	0.7382				
1.469	18.57	-225.0	1.933	13.36	-13.36	.0966	0.6812				
1.869	21.18	-225.8	1.935	15.52	-15.11	.0940	0.6650				
2.069	28.99	-222.2	1.875	20.41	-22.31	.0986	0.6357				
0.269	42.01	-231.6	1.892	35.21	-29.22	.1059	0.7005	23	110	000	17
0.669	36.81	-241.4	1.938	33.30	-19.70	.0800	0.5687				
0.869	31.10	-243.8	2.193	28.42	-14.91	.0803	0.8492				
1.269	32.48	-238.8	2.062	28.56	-18.25	.0898	0.7733				
1.469	30.67	-235.9	2.164	26.15	-18.39	.0810	0.8182				
1.869	31.35	-240.8	2.210	28.00	-16.55	.0803	0.8727				
2.069	32.65	-236.0	2.005	27.97	-19.71	.0968	0.7634				
0.269	08.64	-247.8	1.805	08.00	-03.28	.1171	0.6782	08	115	000	17
0.669	08.07	-270.0	1.774	08.07	00.00	.1214	0.6705				
0.869	07.11	-270.0	1.901	07.11	00.00	.1222	0.8198				
1.269	06.10	-270.0	2.031	06.10	00.00	.1180	0.9686				
1.469	05.95	-298.6	2.007	05.22	02.85	.1221	0.9657				
1.869	09.79	-298.2	2.030	08.64	04.66	.1191	0.9762				
2.069	12.92	-286.3	2.041	12.41	03.68	.1182	0.9855				
0.269	16.46	-251.6	2.095	15.66	-05.32	.1031	0.9361	12	115	000	17
0.669	12.75	-246.1	1.885	11.68	-05.23	.1067	0.6986				
0.869	10.44	-241.4	1.660	09.18	-05.04	.1075	0.4997				
1.269	07.44	-241.7	1.893	06.55	-03.54	.1088	0.7210				
1.469	05.01	-225.0	2.042	03.55	-03.55	.1088	0.9090				
1.869	12.85	-026.4	1.577	-05.79	11.54	.0929	0.3818				
0.269	24.49	-263.3	2.092	24.34	-03.04	.0829	0.7483	16	115	000	17
0.669	17.72	-234.7	2.087	14.61	-10.46	.0925	0.8285				
0.869	19.06	-232.2	2.033	15.26	-11.95	.0946	0.7786				
1.269	18.76	-230.5	1.979	14.68	-12.19	.0951	0.7197				
1.469	17.76	-223.8	1.814	12.50	-13.01	.0980	0.5757				
1.869	16.38	-208.7	1.913	08.03	-14.45	.0953	0.6519				
2.069	27.74	-205.4	2.073	12.71	-25.41	.0854	0.7487				
0.269	35.60	-245.2	2.303	33.21	-16.83	.0667	0.8382	23	115	000	17
0.669	34.61	-241.0	1.724	31.11	-18.49	.0878	0.4494				
1.269	31.98	-237.4	2.109	27.74	-18.59	.0824	0.7644				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_0 = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,0}}$	$\frac{p_{t,1}}{p_{t,0}}$	α_i	θ	ϕ	RUN
1.469	30.47	-233.1	2.148	25.19	-19.45	.0793	0.7818				
1.869	29.91	-238.3	2.106	26.07	-16.81	.0824	0.7609				
2.069	32.30	-232.4	1.977	26.60	-21.09	.0941	0.7105				
0.269	-00.60	-225.0	1.929	00.00	00.00	.1339	0.9383	00	120	000	17
0.469	00.53	-277.3	1.932	00.52	00.06	.1349	0.9496				
0.669	00.03	-360.0	1.904	00.00	00.03	.1385	0.9336				
0.869	00.30	-329.7	1.904	00.15	00.25	.1385	0.9336				
1.069	00.55	-244.5	1.919	00.49	-00.23	.1357	0.9367				
1.269	-00.39	-300.6	1.915	00.00	00.00	.1360	0.9323				
1.469	-00.39	-239.4	1.895	00.00	00.00	.1397	0.9285				
1.669	00.35	-221.5	1.912	00.23	-00.26	.1391	0.9497				
1.869	00.09	-210.2	1.906	00.04	-00.07	.1408	0.9520				
2.069	00.41	-149.9	1.912	-00.20	-00.35	.1402	0.9573				
0.269	06.73	-262.2	1.653	06.66	-00.91	.1188	0.5464	08	120	000	17
0.469	07.73	-270.0	1.601	07.73	00.00	.1232	0.5245				
0.669	07.75	-270.0	1.866	07.75	00.00	.1234	0.7844				
0.869	07.83	-268.3	1.966	07.82	-00.23	.1241	0.9211				
1.069	08.55	-251.7	1.961	08.12	-02.70	.1246	0.9179				
1.269	06.60	-270.0	2.015	06.60	00.00	.1187	0.9506				
1.469	06.82	-284.3	2.016	06.61	01.69	.1201	0.9636				
1.669	07.16	-270.0	2.041	07.16	00.00	.1182	0.9859				
1.869	09.35	-285.4	2.044	09.02	02.50	.1186	0.9941				
2.069	09.54	-270.0	2.025	09.54	00.00	.1214	0.9879				
0.269	15.54	-246.3	2.010	14.28	-06.37	.1126	0.8947	12	120	000	17
0.469	13.85	-243.2	1.912	12.41	-06.34	.1086	0.7413				
0.669	12.56	-250.4	1.772	11.85	-04.27	.1070	0.5887				
0.869	07.81	-241.0	1.644	06.84	-03.80	.1061	0.4813				
1.069	08.80	-238.1	1.879	07.48	-04.67	.1072	0.6951				
1.269	07.63	-242.9	2.028	06.80	-03.49	.1067	0.8723				
1.469	05.79	-252.9	2.073	05.53	-01.70	.1069	0.9372				
1.669	05.90	-225.0	2.132	04.17	-04.17	.1064	1.0229				
1.869	08.58	-315.0	1.942	06.09	06.09	.1070	0.7649				
2.069	16.59	-302.9	1.981	14.04	09.19	.0934	0.7098				
0.269	22.33	-263.2	2.058	22.18	-02.78	.0860	0.7369	16	120	000	17
0.469	20.48	-229.6	1.813	15.87	-13.60	.1239	0.7262				
0.669	16.56	-229.9	2.056	12.81	-10.84	.0943	0.8054				
0.869	17.87	-225.0	2.046	12.84	-12.84	.0914	0.7682				
1.069	21.02	-221.1	1.870	14.17	-16.14	.0976	0.6246				
1.269	18.22	-225.0	1.869	13.10	-13.10	.0944	0.6034				
1.469	15.33	-225.0	1.700	10.97	-10.97	.0950	0.4689				
1.669	13.95	-234.8	1.804	11.47	-08.14	.1018	0.5886				
1.869	08.49	-203.9	2.218	03.46	-07.77	.0827	0.9092				
2.069	15.03	-154.0	1.712	-06.71	-13.56	.0647	0.3253				
0.269	29.48	-259.0	2.306	29.02	-06.15	.0547	0.6907	23	120	000	17
0.469	36.17	-225.0	1.624	27.36	-27.36	.1178	0.5191				
0.669	30.39	-232.8	1.739	25.03	-19.52	.0969	0.5072				
0.869	30.62	-236.9	2.112	26.37	-17.91	.0809	0.7538				
1.069	32.01	-230.4	2.004	25.71	-21.72	.0917	0.7220				
1.269	31.45	-235.8	2.132	26.83	-18.97	.0789	0.7581				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
1.469	29.64	-229.5	2.132	23.39	-20.28	.0785	0.7540				
1.669	30.08	-228.9	2.066	23.58	-20.84	.0832	0.7219				
1.869	28.15	-235.5	2.081	23.79	-16.86	.0803	0.7128				
2.069	30.51	-225.0	2.116	22.61	-22.61	.0773	0.7245				
0.269	07.42	-298.0	1.614	06.56	03.49	.1189	0.5159	08	125	000	17
0.669	08.82	-259.5	1.969	08.67	-01.61	.1216	0.9067				
0.869	08.24	-263.4	1.980	08.18	-00.95	.1236	0.9370				
1.269	07.66	-270.0	2.030	07.66	00.00	.1186	0.9720				
1.469	07.74	-270.0	2.009	07.74	00.00	.1201	0.9526				
1.869	09.46	-270.0	2.001	09.46	00.00	.1238	0.9700				
2.069	10.00	-260.1	2.002	09.85	-01.73	.1255	0.9850				
0.269	15.10	-242.9	1.971	13.50	-07.00	.1167	0.8730	12	125	000	17
0.669	13.47	-247.0	1.747	12.43	-05.34	.1034	0.5483				
0.869	07.88	-241.3	1.706	06.92	-03.80	.1027	0.5115				
1.269	09.09	-241.6	2.024	08.01	-04.35	.1079	0.8766				
1.469	07.91	-255.8	2.060	07.67	-01.95	.1084	0.9317				
1.869	10.80	-275.4	2.024	10.75	01.02	.1153	0.9363				
2.069	13.83	-275.6	2.037	13.76	01.37	.1097	0.9090				
0.269	20.14	-260.4	1.996	19.87	-03.50	.0923	0.7180	16	125	000	17
0.669	14.74	-217.7	1.900	09.13	-11.75	.1058	0.7091				
0.869	16.91	-218.5	2.006	10.71	-13.38	.0905	0.7152				
1.269	17.82	-225.0	1.747	12.80	-12.80	.0948	0.5027				
1.469	14.61	-231.7	1.673	11.56	-09.17	.0930	0.4407				
1.869	08.12	-256.1	2.014	07.88	-01.96	.0884	0.7066				
2.069	05.51	-339.9	1.900	01.89	05.17	.0726	0.4864				
0.269	27.00	-253.1	2.106	25.99	-08.42	.0471	0.4349	23	125	000	17
0.669	31.14	-225.2	2.161	23.20	-23.06	.0920	0.9251				
0.869	31.00	-230.0	2.067	24.71	-21.11	.0853	0.7404				
1.269	30.71	-233.1	2.122	25.40	-19.62	.0781	0.7397				
1.469	29.56	-225.8	2.141	22.12	-21.57	.0762	0.7426				
1.869	26.10	-231.6	2.110	21.00	-16.92	.0733	0.6812				
2.069	27.80	-221.6	1.996	19.29	-21.51	.0772	0.6006				
0.269	09.71	-301.7	1.688	08.28	05.13	.1132	0.5487	08	130	000	17
0.469	05.95	-258.1	1.762	05.82	-01.23	.1226	0.6645				
0.669	08.82	-249.4	1.956	08.26	-03.12	.1236	0.9028				
0.869	08.58	-255.0	1.959	08.29	-02.23	.1243	0.9124				
1.069	09.37	-244.0	2.000	08.43	-04.13	.1224	0.9577				
1.269	09.19	-256.9	1.988	08.95	-02.10	.1210	0.9294				
1.469	08.47	-270.0	2.020	08.47	00.00	.1206	0.9736				
1.669	09.34	-247.3	2.007	08.62	-03.63	.1228	0.9714				
1.869	09.60	-265.3	2.016	09.56	-00.79	.1231	0.9874				
2.069	09.46	-247.9	1.998	08.77	-03.58	.1261	0.9839				
0.269	14.28	-240.1	1.927	12.44	-07.23	.1212	0.8470	12	130	000	17
0.469	15.36	-225.0	1.762	11.00	-11.00	.1130	0.6125				
0.669	17.37	-227.7	1.636	13.02	-11.88	.1075	0.4820				
0.869	08.04	-228.2	1.717	06.01	-05.37	.0992	0.5024				
1.069	13.49	-225.0	1.776	09.63	-09.63	.1100	0.6090				
1.269	10.87	-240.3	2.045	09.46	-05.43	.1079	0.9054				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.469	10.06	-248.7	2.045	09.38	-03.68	.1099	0.9221				
1.669	11.60	-250.2	2.075	10.93	-03.97	.1109	0.9749				
1.869	11.85	-270.0	2.067	11.85	00.00	.1141	0.9907				
2.069	12.83	-258.9	2.013	12.59	-02.51	.1217	0.9722				
0.269	17.22	-257.9	1.920	16.85	-03.71	.1043	0.7204	16	130	000	17
0.469	14.62	-225.0	1.773	10.45	-10.45	.1326	0.7314				
0.669	12.98	-204.2	1.800	05.39	-11.87	.1113	0.6395				
0.869	18.68	-201.0	1.756	06.90	-17.51	.1088	0.5849				
1.069	23.08	-207.5	1.794	11.13	-20.70	.1090	0.6209				
1.269	21.11	-225.0	1.603	15.26	-15.26	.1011	0.4314				
1.469	15.85	-239.5	1.774	13.74	-08.19	.0911	0.5030				
1.669	16.00	-245.0	2.037	14.56	-06.90	.0931	0.8333				
1.869	13.93	-270.0	2.180	13.93	00.00	.0875	0.9073				
2.069	12.70	-270.0	1.996	12.70	00.00	.0896	0.6970				
0.269	18.69	-241.9	1.724	16.61	-09.05	.0413	0.2116	23	130	000	17
0.469	34.98	-240.9	1.688	31.44	-18.79	.0924	0.4475				
0.669	28.60	-225.0	2.068	21.08	-21.08	.0942	0.8192				
0.869	31.97	-221.7	2.062	22.54	-24.98	.0891	0.7673				
1.069	30.11	-219.0	2.181	20.05	-24.26	.0806	0.8362				
1.269	29.83	-228.7	2.106	23.30	-20.72	.0781	0.7203				
1.469	29.67	-222.9	2.189	21.19	-22.65	.0716	0.7520				
1.869	25.57	-228.6	2.018	19.74	-17.55	.0744	0.5981				
2.069	26.70	-216.1	1.972	16.50	-22.11	.0714	0.5352				
1.069	00.86	-269.3	1.893	00.86	-00.01	.1349	0.8941	00	135	000	17
0.469	07.88	-235.4	1.687	06.49	-04.49	.1241	0.6006	08	135	000	17
0.669	09.02	-243.8	1.976	08.10	-04.00	.1244	0.9379				
1.069	09.53	-241.6	1.982	08.40	-04.56	.1231	0.9368				
1.269	08.97	-249.0	2.017	08.38	-03.23	.1189	0.9550				
1.669	09.05	-242.7	2.010	08.05	-04.17	.1204	0.9567				
1.869	09.51	-252.2	2.020	09.06	-02.93	.1211	0.9774				
0.469	16.05	-204.4	1.635	06.77	-14.68	.1235	0.5529	12	135	000	17
0.669	23.40	-211.8	1.610	12.84	-20.19	.1112	0.4798				
1.069	15.70	-225.0	1.837	11.24	-11.24	.1107	0.6728				
1.269	13.06	-240.2	2.017	11.38	-06.57	.1101	0.8847				
1.669	12.81	-244.2	2.041	11.56	-05.65	.1123	0.9362				
1.869	12.80	-260.8	2.084	12.64	-02.08	.1117	0.9959				
0.469	09.77	-225.0	1.877	06.94	-06.94	.1112	0.7189	16	135	000	17
0.669	11.33	-180.0	1.901	00.00	-11.33	.1112	0.7464				
1.069	20.62	-205.5	1.655	09.20	-18.75	.1191	0.5498				
1.269	24.61	-223.0	1.349	17.34	-18.52	.1357	0.4021				
1.669	16.73	-241.6	2.023	14.81	-08.13	.1009	0.8184				
1.869	15.27	-259.3	2.109	15.01	-02.90	.0968	0.8979				
0.469	26.63	-258.7	1.995	26.18	-05.61	.0716	0.5558	23	135	000	17
0.669	27.79	-223.4	1.926	19.90	-20.95	.0970	0.6769				
1.069	34.36	-210.3	1.895	19.03	-30.55	.1049	0.6975				
1.269	30.84	-224.2	2.150	22.60	-23.17	.0735	0.7266				
1.669	25.12	-223.6	2.122	17.91	-18.75	.0706	0.6688				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
1.869	23.39	-231.9	2.040	18.79	-14.94	.0689	0.5744				
0.469	10.16	-215.4	1.691	05.92	-08.31	.1215	0.5919	08	140	000	17
0.669	10.55	-242.0	1.827	09.33	-04.99	.1316	0.7882				
1.069	09.94	-241.6	1.971	08.76	-04.76	.1234	0.9229				
1.269	08.94	-244.9	1.994	08.10	-03.81	.1205	0.9335				
1.669	09.01	-240.6	2.022	07.86	-04.45	.1187	0.9612				
1.869	08.78	-245.1	2.048	07.97	-03.72	.1177	0.9926				
0.469	17.76	-180.0	1.531	00.00	-17.76	.1338	0.5140	12	140	000	17
0.669	30.68	-200.9	1.687	11.95	-28.99	.1049	0.5081				
1.069	19.23	-230.8	1.710	15.12	-12.43	.1148	0.5758				
1.269	15.91	-243.0	1.916	14.25	-07.37	.1158	0.7950				
1.669	13.19	-242.3	2.036	11.72	-06.21	.1133	0.9382				
1.869	13.08	-251.8	2.081	12.44	-04.15	.1111	0.9864				
0.469	06.48	-187.7	2.310	00.87	-06.42	.0797	1.0126	16	140	000	17
0.669	11.79	-157.4	1.970	-04.58	-10.90	.0989	0.7389				
1.069	21.95	-204.3	1.709	09.41	-20.16	.1171	0.5856				
1.269	19.02	-235.9	1.643	15.93	-10.93	.1122	0.5084				
1.669	17.10	-239.7	2.046	14.87	-08.82	.1018	0.8559				
1.869	16.07	-254.8	2.184	15.53	-04.31	.0925	0.9649				
0.469	20.72	-270.0	1.716	20.72	00.00	.0882	0.4458	23	140	000	17
0.669	28.26	-216.8	1.606	17.84	-23.28	.1111	0.4762				
1.069	35.08	-209.0	1.864	18.80	-31.55	.1007	0.6378				
1.269	34.21	-210.2	1.826	18.87	-30.43	.1059	0.6331				
1.669	23.05	-215.2	1.976	13.78	-19.17	.0784	0.5911				
1.869	19.14	-230.9	2.040	15.07	-12.34	.0670	0.5579				
0.469	09.66	-240.6	1.761	08.43	-04.77	.1202	0.6510	08	145	000	17
0.669	10.48	-241.8	1.853	09.25	-04.99	.1318	0.8211				
1.069	09.94	-241.3	1.979	08.73	-04.81	.1227	0.9297				
1.269	09.06	-244.4	2.008	08.18	-03.94	.1193	0.9452				
1.669	09.07	-239.6	2.000	07.83	-04.61	.1215	0.9505				
1.869	08.48	-242.0	2.044	07.49	-04.00	.1181	0.9899				
0.469	12.85	-148.9	1.691	-06.72	-11.05	.1261	0.6140	12	145	000	17
0.669	21.13	-192.5	1.930	04.78	-20.67	.0988	0.6234				
1.069	22.16	-249.0	1.634	20.81	-08.30	.1209	0.5404				
1.269	17.04	-247.0	1.942	15.75	-06.82	.1124	0.8034				
1.669	13.66	-241.4	2.007	12.04	-06.63	.1163	0.9202				
1.869	13.04	-247.9	2.050	12.11	-04.98	.1136	0.9613				
0.469	13.59	-149.2	2.111	-07.05	-11.73	.0855	0.7957	16	145	000	17
0.669	17.74	-147.3	2.186	-09.80	-15.06	.0848	0.8864				
1.069	23.07	-211.9	2.008	12.68	-19.87	.1000	0.7927				
1.269	20.07	-237.7	1.736	17.16	-11.04	.1087	0.5665				
1.669	17.91	-240.1	2.016	15.65	-09.15	.1050	0.8427				
1.869	15.68	-250.9	2.147	14.85	-05.24	.0973	0.9575				
0.469	10.85	-252.7	1.724	10.37	-03.26	.0920	0.4707	23	145	000	17
0.669	24.20	-212.9	1.587	13.71	-20.67	.1039	0.4331				
1.069	34.05	-206.7	1.872	16.89	-31.12	.0926	0.5943				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.269	34.33	-209.0	1.857	18.31	-30.84	.1001	0.6279				
1.669	27.48	-210.1	1.673	14.62	-24.22	.0999	0.4732				
1.869	20.17	-225.0	1.842	14.56	-14.56	.0767	0.4700				
0.469	01.14	-244.8	1.960	01.03	-00.48	.1336	0.9822	00	150	000	17
0.669	00.18	-225.0	1.961	00.12	-00.12	.1299	0.9570				
1.069	00.39	-241.9	1.973	00.34	-00.18	.1287	0.9656				
1.269	-00.45	-225.0	1.954	00.00	00.00	.1313	0.9568				
1.669	03.26	-090.0	2.162	-03.26	00.00	.0998	1.0053				
1.869	02.68	-045.0	2.133	-01.89	01.89	.1041	1.0026				
0.469	10.53	-270.0	1.712	10.53	00.00	.1273	0.6397	08	150	000	17
0.669	09.24	-246.3	1.982	08.47	-03.74	.1275	0.9705				
1.069	09.23	-240.9	2.047	08.08	-04.51	.1197	1.0073				
1.269	08.41	-242.7	2.028	07.48	-03.87	.1189	0.9712				
1.669	09.14	-238.6	1.983	07.82	-04.79	.1254	0.9551				
1.869	08.63	-240.9	2.008	07.55	-04.22	.1230	0.9749				
0.469	06.86	-120.6	1.723	-05.91	-03.50	.1292	0.6600	12	150	000	17
0.669	05.57	-117.1	1.558	-04.96	-02.54	.0933	0.3728				
1.069	18.39	-256.9	2.001	17.94	-04.30	.1097	0.8596				
1.269	15.64	-251.5	2.046	14.86	-05.07	.1109	0.9319				
1.669	13.17	-241.0	2.040	11.56	-06.47	.1145	0.9531				
1.869	12.42	-244.6	2.053	11.25	-05.39	.1144	0.9720				
0.469	22.11	-143.6	1.642	-13.55	-18.10	.1091	0.4935	16	150	000	17
0.669	29.28	-143.3	1.955	-18.52	-24.20	.0923	0.6740				
1.069	38.14	-226.2	1.519	29.54	-28.52	.1234	0.4656				
1.269	23.93	-239.7	1.720	20.96	-12.62	.1075	0.5466				
1.669	17.59	-240.8	2.063	15.46	-08.79	.1037	0.8953				
1.869	15.88	-248.9	2.115	14.86	-05.84	.1010	0.9453				
0.469	02.10	-225.0	1.961	01.48	-01.48	.0837	0.6167	23	150	000	17
0.669	14.28	-197.9	1.981	04.47	-13.61	.0822	0.6246				
1.069	36.16	-202.4	1.519	15.56	-34.04	.1124	0.4242				
1.269	28.44	-204.0	2.100	12.42	-26.32	.0795	0.7269				
1.669	36.01	-211.0	1.357	20.52	-31.92	.1470	0.4405				
1.869	27.96	-225.0	1.330	20.57	-20.57	.1185	0.3419				
0.469	08.44	-258.4	1.608	08.27	-01.70	.1471	0.6328	08	155	000	17
0.669	08.57	-242.0	1.962	07.57	-04.04	.1282	0.9454				
1.069	10.07	-229.1	1.934	07.64	-06.63	.1299	0.9174				
1.269	09.45	-242.8	1.996	08.42	-04.35	.1211	0.9419				
1.669	09.94	-238.4	1.959	08.48	-05.24	.1269	0.9318				
1.869	09.09	-240.4	1.974	07.92	-04.51	.1267	0.9525				
0.469	03.29	-090.0	1.683	-03.29	00.00	.1391	0.6694	12	155	000	17
0.669	07.07	-041.0	2.030	-04.65	05.34	.0681	0.5579				
1.069	17.98	-257.1	1.699	17.55	-04.14	.1259	0.6202				
1.269	15.68	-255.5	2.017	15.20	-04.02	.1113	0.8942				
1.669	12.68	-240.6	2.063	11.09	-06.30	.1118	0.9644				
1.869	11.77	-243.9	2.065	10.59	-05.23	.1127	0.9752				
0.469	21.98	-135.2	1.614	-15.87	-15.98	.1232	0.5348	16	155	000	17

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	run
0.669	29.92	-135.9	1.949	-21.82	-22.45	.0890	0.6431				
1.069	24.24	-249.2	2.028	22.82	-09.08	.0723	0.5913				
1.269	23.68	-245.3	1.954	21.72	-10.38	.0942	0.6862				
1.669	17.73	-242.0	2.052	15.76	-08.53	.1048	0.8889				
1.869	15.78	-247.8	2.112	14.66	-06.09	.1021	0.9514				
0.469	04.74	-069.7	1.535	-04.44	01.64	.0912	0.3522	23	155	000	17
0.669	14.37	-180.0	1.518	00.00	-14.37	.0889	0.3350				
1.069	21.60	-182.3	1.913	00.91	-21.56	.0677	0.4630				
1.269	25.28	-199.7	2.069	09.04	-23.97	.0687	0.5988				
1.669	36.15	-213.9	1.417	22.16	-31.23	.1373	0.4474				
1.869	28.77	-225.0	1.397	21.22	-21.22	.1202	0.3810				
0.469	04.65	-240.2	1.904	04.03	-02.31	.1416	0.9545	08	160	000	17
0.669	06.67	-225.0	1.945	04.72	-04.72	.1353	0.9720				
1.069	09.55	-222.6	1.936	06.49	-07.05	.1333	0.9442				
1.269	07.84	-240.7	2.090	06.84	-03.85	.1130	1.0171				
1.669	08.79	-232.9	2.008	07.03	-05.32	.1205	0.9547				
1.869	09.57	-236.1	1.858	07.96	-05.37	.1283	0.8061				
0.469	-00.43	-090.0	1.885	00.00	00.00	.1408	0.9213	12	160	000	17
0.669	00.50	-334.4	1.927	00.21	00.45	.1398	0.9770				
1.069	10.90	-270.0	1.807	10.90	00.00	.1595	0.9264				
1.269	12.59	-253.1	2.227	12.06	-03.71	.1017	1.1346				
1.669	12.08	-240.1	2.060	10.51	-06.08	.1114	0.9570				
1.869	11.28	-243.0	2.062	10.07	-05.17	.1126	0.9708				
0.469	13.35	-130.9	1.812	-10.16	-08.83	.1258	0.7364	16	160	000	17
0.669	21.14	-119.3	1.935	-18.63	-10.71	.0890	0.6298				
1.069	13.13	-267.8	1.679	13.12	-00.51	.1049	0.5019				
1.269	22.61	-255.7	2.147	21.97	-05.87	.0881	0.8669				
1.669	16.70	-243.2	2.103	14.99	-07.70	.1017	0.9349				
1.869	15.12	-246.8	2.126	13.94	-06.07	.1012	0.9641				
0.469	10.21	-041.1	1.745	-06.75	07.72	.0874	0.4621	23	160	000	17
0.669	05.47	-119.5	1.788	-04.76	-02.70	.0789	0.4449				
1.069	07.80	-120.2	1.560	-06.75	-03.94	.0725	0.2906				
1.269	18.34	-176.3	1.441	-01.22	-18.30	.0765	0.2646				
1.669	24.52	-225.0	1.571	17.87	-17.87	.0957	0.3896				
1.869	25.33	-228.0	1.622	19.37	-17.57	.1100	0.4829				
0.469	03.40	-225.0	1.897	02.41	-02.41	.1443	0.9625	08	165	000	17
1.069	08.63	-219.9	1.975	05.56	-06.64	.1301	0.9792				
1.669	08.96	-225.0	1.881	06.36	-06.36	.1242	0.8084				
0.469	00.45	-225.0	1.907	00.32	-00.32	.1391	0.9423	12	165	000	17
1.069	10.71	-210.9	1.760	05.54	-09.21	.1694	0.9157				
1.669	11.77	-240.0	2.055	10.22	-05.94	.1093	0.9315				
0.469	07.80	-117.6	1.848	-06.92	-03.63	.1270	0.7856	16	165	000	17
1.069	08.26	-299.1	1.762	07.22	04.03	.1311	0.7106				
1.669	15.01	-243.8	2.131	13.52	-06.75	.1003	0.9630				
0.469	14.61	-022.6	1.761	-05.72	13.53	.0889	0.4813	23	165	000	17

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR OAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.069	14.78	-045.0	1.855	-10.57	10.57	.0676	0.4225				
1.669	07.66	-236.8	1.591	06.42	-04.21	.0959	0.4022				
0.469	03.19	-210.0	1.904	01.59	-02.76	.1440	0.9703	08	170	000	17
1.069	09.25	-198.1	1.845	02.89	-08.80	.1524	0.9383				
1.669	03.99	-225.0	2.383	02.82	-02.82	.0801	1.1411				
0.469	01.40	-209.8	1.897	00.69	-01.21	.1397	0.9321	12	170	000	17
1.069	06.92	-204.8	1.807	03.76	-08.10	.1606	0.9328				
1.669	07.79	-228.0	2.271	05.80	-05.23	.0993	1.1860				
0.469	03.61	-059.7	1.901	-03.11	01.82	.1254	0.8418	16	170	000	17
1.069	04.79	-328.9	1.779	02.47	04.10	.1531	0.8521				
1.669	10.00	-209.7	1.774	04.99	-08.70	.1650	0.9112				
0.469	16.86	-360.0	1.762	00.00	16.86	.0887	0.4807	23	170	000	17
1.069	22.81	-020.7	2.158	-08.45	21.47	.0654	0.6550				
1.669	09.19	-019.5	1.731	-03.09	08.67	.1112	0.5754				
0.469	02.73	-194.5	1.906	00.68	-02.64	.1442	0.9753	08	175	000	17
1.069	08.39	-180.0	1.848	00.00	-08.39	.1583	0.9788				
1.669	-00.18	-239.8	2.355	00.00	00.00	.0732	0.9975				
0.469	01.32	-203.1	1.900	00.51	-01.21	.1405	0.9414	12	175	000	17
1.069	09.64	-192.6	1.682	02.12	-09.41	.1605	0.7709				
1.669	28.19	-181.7	1.282	00.91	-28.17	.2375	0.6423				
0.469	03.19	-006.7	1.926	-00.37	03.16	.1241	0.8655	16	175	000	17
1.069	03.38	-334.5	1.767	01.45	03.05	.1702	0.9298				
1.669	08.14	-186.7	1.800	00.95	-08.08	.1608	0.9240				
0.469	18.14	-335.7	1.728	07.67	16.62	.0875	0.4503	23	175	000	17
1.069	24.98	-360.0	1.987	00.00	24.98	.0720	0.5519				
1.669	12.84	000.0	1.794	00.00	12.64	.1219	0.6942				
0.469	00.62	-315.0	2.061	00.43	00.43	.1128	0.9705	00	180	000	17
1.069	01.00	-319.1	2.082	00.65	00.75	.1069	0.9502				
1.669	01.33	-344.8	2.100	00.34	01.28	.1076	0.9837				
0.469	02.85	-174.3	1.896	-00.28	-02.83	.1454	0.9685	08	180	000	17
1.069	08.70	-180.0	1.834	00.00	-08.70	.1594	0.9644				
1.669	-00.58	-225.0	2.340	00.00	00.00	.0746	0.9926				
0.469	01.53	-180.0	1.901	00.00	-01.53	.1404	0.9420	12	180	000	17
1.069	08.07	-170.7	1.824	-01.31	-07.96	.1574	0.9380				
1.669	21.96	-184.6	1.588	01.85	-21.89	.1924	0.8033				
0.469	03.95	-300.2	1.915	03.41	01.98	.1242	0.8517	16	180	000	17
1.069	03.54	-007.8	1.797	-00.48	03.50	.1565	0.8952				
1.669	08.73	-154.4	1.806	-03.79	-07.88	.1580	0.9159				
0.469	19.78	-315.0	1.792	14.27	14.27	.0775	0.4396	23	180	000	17
1.069	14.74	-330.5	1.773	07.38	12.69	.0667	0.3679				
1.669	06.14	-045.0	1.562	-04.35	04.35	.0967	0.3884				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	β	RUN
0.469	02.94	-150.3	1.896	-01.45	-02.55	.1453	0.9680	08	185	000	17
1.069	09.20	-175.5	1.835	-00.72	-09.17	.1516	0.9187				
1.669	13.67	-135.0	1.897	-09.75	-09.75	.1221	0.8145				
0.469	01.11	-180.0	1.907	00.00	-01.11	.1392	0.9427	12	185	000	17
1.069	08.29	-152.9	1.813	-03.79	-07.39	.1599	0.9372				
1.669	09.19	-120.0	2.111	-07.97	-04.62	.1034	0.9626				
0.469	06.58	-255.8	1.858	06.38	-01.62	.1256	0.7888	16	185	000	17
1.069	05.85	-038.0	1.714	-03.60	04.61	.1402	0.7069				
1.669	13.23	-160.4	1.733	-04.50	-12.48	.1549	0.8040				
0.469	20.69	-300.0	1.768	18.11	10.69	.0739	0.4042	23	185	000	17
1.069	06.97	-306.4	1.529	05.62	04.14	.0668	0.2557				
1.669	16.44	-127.3	1.438	-13.20	-10.13	.1169	0.3926				
0.469	03.49	-135.0	1.883	-02.46	-02.46	.1486	0.9570	08	190	000	17
1.069	07.84	-135.0	1.964	-05.56	-05.56	.1305	0.9660				
1.669	07.87	-134.8	2.020	-05.60	-05.56	.1208	0.9748				
0.469	00.30	-210.3	1.906	00.15	-00.25	.1388	0.9385	12	190	000	17
1.069	09.02	-149.2	1.794	-04.64	-07.76	.1615	0.9197				
1.669	10.18	-118.7	2.095	-08.95	-04.92	.1059	0.9613				
0.469	12.50	-234.1	1.830	10.18	-07.40	.1252	0.7529	16	190	000	17
1.069	10.83	-063.0	1.665	-09.67	04.96	.1143	0.5355				
1.669	16.28	-112.7	2.084	-15.07	-06.43	.1036	0.9241				
0.469	21.75	-284.7	1.821	21.10	05.78	.0659	0.3913	23	190	000	17
1.069	10.40	-170.6	1.786	-01.71	-10.26	.0597	0.3361				
1.669	31.19	-145.5	1.760	-18.92	-26.51	.1090	0.5895				
0.269	07.48	-339.5	1.753	02.63	07.01	.1807	0.9665	20	000	000	18
0.869	11.60	-356.9	1.723	00.63	11.58	.1856	0.9485				
1.469	11.25	-354.3	1.682	01.13	11.19	.2006	0.9636				
2.069	12.05	-360.0	1.795	00.00	12.05	.1487	0.8478				
0.269	11.21	-309.8	1.781	08.65	07.23	.1745	0.9738	20	015	000	18
0.869	13.46	-326.9	1.750	07.44	11.33	.1793	0.9545				
1.469	12.99	-326.8	1.714	07.19	10.92	.1914	0.9648				
0.269	16.36	-296.1	1.871	14.76	07.35	.1528	0.9792	20	030	000	18
0.669	15.92	-306.2	1.798	12.96	09.56	.1634	0.9360				
0.869	16.24	-309.3	1.810	12.70	10.45	.1646	0.9605				
1.269	14.37	-312.9	1.793	10.62	09.89	.1692	0.9621				
1.469	15.46	-310.3	1.750	11.91	10.14	.1813	0.9650				
1.869	13.48	-360.0	1.712	00.00	13.48	.1925	0.9674				
2.069	14.81	-309.3	1.509	11.56	09.50	.1959	0.7286				
0.269	21.69	-282.2	1.963	21.24	04.80	.1310	0.9681	20	045	000	18
0.669	19.68	-294.0	1.876	18.09	08.27	.1436	0.9269				
0.869	19.16	-297.1	1.842	17.18	08.99	.1498	0.9178				
1.269	17.62	-297.1	1.886	15.78	08.23	.1463	0.9596				
1.469	18.40	-297.5	1.831	16.43	08.73	.1568	0.9446				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.869	16.87	-298.6	1.825	14.90	08.25	.1616	0.9647				
0.269	26.96	-225.0	2.069	19.78	-19.78	.1079	0.9402	20	060	000	18
0.469	25.09	-225.0	1.957	18.31	-18.31	.1197	0.8763				
0.669	23.64	-225.0	1.920	17.19	-17.19	.1262	0.8721				
0.869	23.39	-275.9	1.899	23.27	02.54	.1315	0.8797				
1.269	22.27	-274.3	1.979	22.21	01.75	.1227	0.9294				
1.469	22.97	-278.4	1.984	22.74	03.54	.1245	0.9498				
1.669	20.99	-272.8	1.958	20.96	01.07	.1285	0.9426				
1.869	21.78	-286.6	1.971	20.95	06.51	.1285	0.9616				
0.269	30.65	-270.0	2.240	30.65	00.00	.0866	0.9859	20	070	000	18
0.869	26.30	-270.0	1.940	26.30	00.00	.1184	0.8447				
1.469	24.91	-270.0	2.016	24.91	00.00	.1129	0.9057				
0.269	32.28	-270.0	2.322	32.28	00.00	.0772	0.9991	20	075	000	18
0.469	29.92	-265.3	2.090	29.83	-02.70	.0953	0.8581				
0.669	28.13	-266.5	1.952	28.08	-01.86	.1106	0.8026				
0.869	28.60	-267.2	1.974	28.57	-01.52	.1112	0.8358				
1.269	28.21	-266.8	2.046	28.17	-01.71	.1041	0.8751				
1.469	26.77	-270.0	2.053	26.77	00.00	.1050	0.8918				
1.669	28.32	-262.9	2.094	28.13	-03.81	.1031	0.9341				
1.869	26.72	-225.0	2.083	19.59	-19.59	.1036	0.9225				
0.268	33.91	-268.1	2.290	33.89	-01.27	.0749	0.9219	20	080	000	18
0.869	31.28	-260.3	2.118	30.91	-05.84	.0936	0.8803				
1.469	29.95	-262.3	2.128	29.72	-04.41	.0943	0.9004				
0.269	36.00	-257.4	2.321	35.33	-09.00	.0694	0.8965	20	085	000	18
0.869	32.91	-253.7	2.082	31.84	-10.29	.0924	0.8208				
1.469	25.80	-250.2	2.121	24.45	-09.30	.1010	0.9537				
0.469	35.32	-253.1	2.237	34.13	-11.63	.0712	0.8066	20	090	000	18
0.669	34.14	-250.6	2.105	32.60	-12.69	.0832	0.7667				
0.869	28.21	-249.7	2.191	26.70	-10.54	.0903	0.9520				
1.069	27.67	-241.8	2.099	24.80	-13.91	.1052	0.9611				
1.269	28.41	-245.6	2.039	26.22	-12.59	.1042	0.8659				
1.469	27.72	-245.8	2.068	25.60	-12.15	.1021	0.8878				
1.669	29.09	-243.0	2.045	26.36	-14.17	.1060	0.8894				
1.569	29.09	-254.2	2.126	28.16	-08.61	.0998	0.9497				
0.269	36.21	-256.6	2.094	35.45	-09.63	.0718	0.6507	20	095	000	18
0.869	28.93	-249.7	2.013	27.40	-10.85	.1037	0.8282				
1.469	27.79	-242.1	2.094	24.97	-13.85	.0955	0.8656				
0.269	38.91	-250.2	2.078	37.21	-15.29	.0716	0.6329	20	100	000	18
0.669	29.02	-249.0	2.098	27.38	-11.24	.0917	0.8358				
0.869	28.84	-247.3	2.016	26.93	-11.99	.1004	0.8055				
1.269	28.87	-240.5	2.058	25.63	-15.18	.0956	0.8196				
1.469	27.30	-239.9	2.079	24.06	-14.51	.0940	0.8321				
1.869	28.00	-244.9	2.117	25.71	-12.71	.0954	0.8963				
0.269	33.75	-240.8	1.924	30.25	-18.05	.0860	0.5976	20	105	000	18
0.469	31.10	-243.9	1.581	28.44	-14.86	.1045	0.4318				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
0.669	29.90	-233.6	1.834	24.83	-18.84	.1159	0.7014				
0.869	28.42	-244.7	2.002	26.06	-13.02	.0977	0.7669				
1.269	28.30	-238.6	2.062	24.68	-15.67	.0924	0.7965				
1.469	26.22	-237.2	2.049	22.48	-14.93	.0940	0.7936				
1.669	27.96	-236.7	2.015	23.92	-16.24	.0998	0.7997				
1.869	27.55	-241.2	2.106	24.56	-14.10	.0923	0.8516				
0.669	31.29	-229.2	1.854	24.70	-21.66	.1132	0.7070	20	110	000	18
0.869	27.64	-240.3	2.106	24.46	-14.54	.0866	0.7992				
1.269	27.69	-236.5	2.065	23.63	-16.15	.0909	0.7862				
1.469	25.70	-233.6	2.084	21.17	-15.93	.0888	0.7926				
1.869	26.73	-238.5	2.087	23.23	-14.74	.0894	0.8002				
0.269	35.73	-233.9	1.546	30.16	-22.96	.1266	0.4972	20	115	000	18
0.669	32.28	-226.9	1.802	24.76	-23.34	.1196	0.6896				
0.869	26.38	-237.7	2.098	22.74	-14.84	.0857	0.7810				
1.269	27.02	-234.4	2.071	22.52	-16.53	.0980	0.7695				
1.469	24.72	-231.1	2.076	19.71	-16.12	.0858	0.7555				
1.869	23.60	-234.4	2.105	19.55	-14.26	.0802	0.7390				
0.269	29.82	-268.1	2.603	29.80	-01.08	.0572	1.1464	20	120	000	18
0.469	26.46	-235.6	2.084	22.32	-15.70	.0895	0.7987				
0.669	30.13	-227.9	1.999	23.19	-21.37	.0974	0.7603				
0.869	25.60	-233.2	2.107	20.98	-16.01	.0841	0.7775				
1.269	26.66	-233.8	2.108	22.05	-16.51	.0836	0.7732				
1.469	25.20	-225.5	2.090	18.55	-18.25	.0818	0.7370				
1.669	25.72	-225.0	2.033	18.80	-18.80	.0834	0.6867				
1.869	22.37	-228.1	2.055	17.03	-15.36	.0750	0.6394				
0.269	28.39	-270.0	2.468	28.39	00.00	.0568	0.9229	20	125	000	18
0.669	26.44	-227.9	2.036	20.25	-18.43	.0911	0.7535				
0.869	25.69	-225.4	2.117	18.90	-18.66	.0834	0.7836				
1.269	26.40	-228.6	2.154	20.42	-18.17	.0779	0.7751				
1.469	25.03	-225.0	2.134	18.27	-18.27	.0783	0.7551				
1.869	20.96	-225.0	1.970	15.15	-15.15	.0736	0.5497				
0.269	24.93	-281.8	2.149	24.46	05.43	.0605	0.5969	20	130	000	18
0.469	20.99	-244.9	1.849	19.15	-09.24	.1005	0.6224				
0.669	23.33	-223.6	1.850	16.56	-17.34	.1074	0.6659				
0.869	24.85	-217.2	1.997	15.64	-20.24	.0926	0.7213				
1.269	26.27	-225.0	2.079	19.24	-19.24	.0803	0.7103				
1.469	24.40	-269.9	2.181	24.40	-00.04	.0721	0.7486				
1.669	23.00	-225.0	1.956	16.70	-16.70	.0829	0.6057				
1.869	18.49	-228.6	1.832	14.08	-12.47	.0806	0.4859				
0.269	07.60	-264.7	1.495	07.56	-00.70	.1136	0.4141	08	135	000	18
0.869	08.47	-248.9	1.974	07.91	-03.06	.1241	0.9327				
1.469	08.72	-252.2	1.988	08.30	-02.68	.1209	0.9290				
2.069	08.61	-241.4	2.001	07.57	-04.14	.1247	0.9775				
0.269	13.27	-237.3	1.870	11.22	-07.26	.1256	0.8036	12	135	000	18
0.869	13.76	-198.2	1.564	04.37	-13.09	.1037	0.4179				
1.469	11.51	-246.3	2.052	10.56	-04.67	.1097	0.9305				
2.069	12.34	-246.5	2.043	11.34	-04.98	.1181	0.9874				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	β_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	β	RUN
0.269	15.28	-259.2	1.954	15.02	-02.93	.1091	0.7947	16	135	000	18
0.869	17.74	-180.0	1.889	00.00	-17.74	.1107	0.7297				
1.469	16.64	-239.9	1.759	14.49	-08.52	.1061	0.5729				
2.069	14.95	-258.7	2.202	14.68	-02.99	.0911	0.9778				
0.269	22.89	-297.8	1.761	20.48	11.14	.0902	0.4883	20	135	000	18
0.469	14.23	-250.8	1.929	13.46	-04.76	.0991	0.6947				
0.669	19.00	-215.2	1.937	11.22	-15.71	.1081	0.7667				
0.869	24.01	-206.9	2.040	11.39	-21.66	.0985	0.8208				
1.269	27.39	-211.7	1.809	15.23	-23.78	.0991	0.5774				
1.469	24.37	-214.9	1.918	14.53	-20.38	.0817	0.5632				
1.669	26.18	-217.8	1.720	16.76	-21.22	.0965	0.4909				
1.869	18.27	-239.2	1.945	15.83	-09.59	.0828	0.5102				
2.069	14.32	-231.5	2.105	11.29	-09.02	.0843	0.7772				
0.269	07.20	-180.0	1.807	00.00	-07.20	.0281	0.1634	23	135	000	18
0.869	30.52	-219.4	2.036	20.51	-24.49	.0897	0.7428				
1.469	27.66	-221.1	2.185	19.01	-21.55	.0694	0.7249				
2.069	24.01	-218.8	1.942	15.59	-19.14	.0686	0.4906				
0.269	12.00	-206.7	1.606	05.45	-10.75	.1122	0.4811	08	140	000	18
0.869	09.28	-248.7	1.955	08.65	-03.39	.1255	0.9156				
1.469	08.56	-245.8	2.020	07.81	-03.53	.1179	0.9517				
2.069	08.66	-239.4	2.024	07.46	-04.43	.1221	0.9913				
0.269	11.18	-231.3	1.785	06.76	-07.04	.1300	0.7303	12	140	000	18
0.869	23.33	-200.0	1.607	08.39	-22.06	.1063	0.4562				
1.469	12.49	-244.5	2.057	11.30	-05.44	.1092	0.9336				
2.069	12.34	-242.9	2.045	11.02	-05.69	.1171	0.9826				
0.269	15.50	-253.4	2.067	14.88	-04.53	.1014	0.8808	16	140	000	18
0.869	19.31	-180.0	1.692	00.00	-19.31	.1238	0.6036				
1.469	18.31	-240.8	1.798	16.11	-09.17	.1058	0.6059				
2.069	15.81	-248.7	2.064	14.77	-05.87	.1025	0.8864				
0.269	21.75	-295.8	1.622	19.75	09.85	.1045	0.4589	20	140	000	18
0.469	14.39	-246.7	1.781	13.25	-05.79	.1068	0.5962				
0.669	17.01	-207.7	1.926	08.09	-15.15	.1018	0.7098				
0.869	23.12	-195.0	2.112	06.67	-22.32	.0908	0.8459				
1.069	30.22	-191.4	2.195	06.56	-29.72	.0825	0.8750				
1.269	30.04	-201.7	1.847	12.06	-28.24	.0991	0.6118				
1.469	31.77	-208.9	1.647	16.66	-28.46	.1012	0.4610				
1.869	20.97	-247.3	2.023	19.47	-08.41	.0748	0.6065				
2.069	19.27	-240.4	2.081	16.90	-09.79	.0852	0.7565				
0.269	06.77	-093.0	2.498	-06.76	-00.35	.0409	0.6969	23	140	000	18
0.869	32.57	-213.9	1.744	19.60	-27.93	.1065	0.5618				
1.469	27.10	-219.7	2.290	18.10	-21.49	.0638	0.7862				
2.069	20.02	-219.5	1.863	13.04	-15.70	.0786	0.4979				
0.269	15.48	-180.0	1.715	00.00	-15.48	.1130	0.5703	08	145	000	18
0.869	08.89	-244.1	1.960	08.00	-03.90	.1256	0.9236				
1.469	08.37	-242.4	2.017	07.42	-03.89	.1186	0.9529				
2.069	08.40	-236.9	2.024	07.05	-04.61	.1215	0.9870				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ε	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_1	θ	ϕ	RUN
0.269	06.76	-225.0	1.790	04.79	-04.79	.1306	0.7390	12	145	000	18
0.869	23.45	-211.6	1.619	12.80	-20.27	.1054	0.4607				
1.469	13.31	-245.0	2.037	12.10	-05.71	.1119	0.9269				
2.069	12.68	-239.9	2.027	11.01	-06.43	.1184	0.9563				
0.269	16.39	-242.7	2.103	14.64	-07.68	.0935	0.8592	16	145	000	18
0.869	18.68	-174.1	2.065	-01.99	-18.58	.1006	0.3708				
1.469	19.76	-239.3	1.797	17.16	-10.39	.1093	0.6250				
2.069	14.80	-243.2	2.125	13.27	-06.79	.1016	0.9659				
0.269	14.92	-299.8	1.850	13.01	07.54	.0914	0.5667	20	145	000	18
0.469	08.74	-225.0	1.842	06.20	-06.20	.1039	0.6367				
0.669	14.82	-180.0	2.077	00.00	-14.82	.0899	0.7935				
0.869	20.94	-180.0	2.260	00.00	-20.94	.0787	0.9253				
1.069	23.15	-180.6	2.567	00.25	-23.14	.0601	1.1392				
1.269	28.61	-202.5	2.004	11.79	-26.74	.0873	0.6879				
1.469	32.19	-207.0	1.597	15.94	-29.28	.1098	0.4647				
1.669	30.56	-235.8	1.486	26.02	-16.36	.1133	0.4077				
1.869	23.45	-250.8	1.908	22.27	-08.11	.0665	0.5872				
2.069	20.05	-243.2	2.088	18.04	-09.34	.0889	0.7985				
0.269	11.35	-062.0	2.588	-10.05	05.38	.0438	0.8567	23	145	000	18
0.869	31.62	-210.9	1.780	17.54	-27.84	.0918	0.5117				
1.469	29.00	-210.0	2.014	15.54	-25.71	.0801	0.6405				
2.069	18.04	-232.5	2.118	14.48	-11.21	.0691	0.6496				
0.269	00.69	-292.9	1.965	00.63	00.26	.1311	0.9714	00	150	000	18
0.869	00.38	-332.1	1.987	00.17	00.33	.1279	0.9810				
1.469	01.57	-225.0	1.865	01.11	-01.11	.1364	0.8656				
2.069	02.30	-090.0	2.092	-02.30	00.00	.1112	1.0046				
0.269	09.13	-180.0	1.439	00.00	-09.13	.1224	0.4422	08	150	000	18
0.869	08.32	-242.8	1.979	07.41	-03.82	.1284	0.9726				
1.469	08.09	-240.8	2.027	07.07	-03.96	.1194	0.9746				
2.069	08.28	-231.8	2.011	06.52	-05.14	.1232	0.9809				
0.269	02.25	-210.6	1.820	01.14	-01.93	.1326	0.7855	12	150	000	18
0.869	15.90	-270.0	1.744	15.90	00.00	.0908	0.4787				
1.469	13.17	-245.5	2.056	12.02	-05.54	.1109	0.9467				
2.069	12.60	-238.6	2.009	10.80	-06.64	.1198	0.9502				
0.269	17.18	-236.3	1.922	14.42	-09.73	.1001	0.6940	16	150	000	18
0.869	28.45	-180.0	1.689	00.00	-28.45	.1022	0.4962				
1.469	18.83	-236.4	1.991	15.85	-10.68	.1052	0.8117				
2.069	15.11	-240.8	2.086	13.26	-07.50	.1045	0.9351				
0.269	11.66	-298.9	1.921	09.79	05.24	.0891	0.6165	20	150	000	18
0.469	07.49	-167.1	1.789	-01.68	-07.30	.1049	0.5927				
0.669	20.05	-147.1	1.850	-11.21	-17.03	.0926	0.5742				
0.869	28.38	-170.8	1.858	-04.93	-28.07	.0831	0.5215				
1.269	23.62	-208.8	1.973	11.89	-20.96	.0731	0.5487				
1.469	27.57	-209.0	1.667	14.20	-24.54	.1031	0.4843				
1.669	29.13	-242.1	1.529	26.22	-14.61	.1108	0.4242				
1.869	24.04	-251.5	2.000	22.92	-08.05	.0881	0.6891				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_0 = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_i	θ	β	RUN
2.069	26.23	-243.4	1.601	23.77	-12.44	.1085	0.4620				
0.269	19.54	-045.0	1.844	-14.08	14.08	.0632	0.3880	23	150	000	18
0.869	26.68	-207.8	1.994	13.19	-23.96	.0814	0.6310				
1.469	30.34	-206.6	1.918	14.68	-27.62	.0870	0.5999				
2.069	13.65	-237.8	2.561	11.61	-07.37	.0635	1.1926				
0.269	01.35	-060.8	1.545	-01.17	00.65	.1297	0.5085	08	155	000	18
0.869	08.73	-240.7	1.921	07.62	-04.29	.1341	0.9283				
1.469	08.91	-240.7	1.982	07.78	-04.38	.1231	0.9364				
2.069	08.72	-230.2	1.983	06.72	-05.60	.1275	0.9710				
0.269	00.28	-163.5	1.838	-00.08	-00.26	.1355	0.8252	12	155	000	18
0.869	15.47	-293.5	1.497	14.24	06.29	.1112	0.4065				
1.469	13.20	-244.9	2.058	11.99	-05.68	.1105	0.9464				
2.069	11.70	-237.1	2.025	09.86	-06.41	.1176	0.9569				
0.269	15.74	-225.0	1.802	11.27	-11.27	.1111	0.6402	16	155	000	18
0.869	23.65	-180.0	1.905	00.00	-23.65	.0711	0.4796				
1.469	21.08	-236.4	1.858	17.80	-12.04	.1128	0.7082				
2.069	15.02	-239.9	2.086	13.06	-07.66	.1059	0.9474				
0.269	07.81	-285.2	1.765	07.54	02.06	.0923	0.5030	20	155	000	18
0.469	08.43	-135.0	1.849	-05.98	-05.98	.1010	0.6254				
0.669	18.81	-129.4	2.112	-14.74	-12.20	.0817	0.7615				
0.869	24.51	-155.5	2.220	-10.70	-22.53	.0635	0.6999				
1.069	07.88	-180.0	2.526	00.00	-07.88	.0476	0.8478				
1.269	12.79	-235.2	2.524	10.55	-07.38	.0523	0.9269				
1.469	20.61	-227.2	2.024	15.42	-14.33	.0779	0.6329				
1.669	27.94	-245.1	1.729	25.69	-12.58	.1022	0.5274				
1.869	23.01	-251.0	1.975	21.87	-07.87	.0898	0.6765				
2.069	19.08	-242.7	2.208	17.08	-09.01	.0849	0.9195				
0.269	12.74	-090.0	2.080	-12.74	00.00	.0660	0.5845	23	155	000	18
0.869	31.81	-204.1	1.663	14.21	-29.51	.0873	0.4075				
1.469	31.48	-206.6	1.879	15.33	-28.70	.0890	0.5770				
2.069	21.38	-235.1	1.937	17.80	-12.62	.0796	0.5641				
0.269	02.54	-028.3	2.050	-01.20	02.23	.1210	1.0235	08	160	000	18
0.869	07.73	-240.0	1.983	06.70	-03.88	.1286	0.9796				
1.469	08.92	-240.7	1.991	07.79	-04.39	.1214	0.9371				
2.069	12.18	-231.7	1.691	09.61	-07.61	.1403	0.6834				
0.269	-00.10	-090.0	1.892	00.00	00.00	.1359	0.8996	12	160	000	18
0.869	07.08	-270.0	2.009	07.08	00.00	.1326	1.0515				
1.469	12.57	-244.9	2.063	11.41	-05.40	.1102	0.9514				
2.069	10.97	-235.5	2.048	09.07	-06.26	.1162	0.9795				
0.269	11.30	-217.2	1.826	06.88	-09.04	.1176	0.7029	16	160	000	18
0.869	07.69	-157.3	2.408	-02.98	-07.10	.0454	0.6719				
1.469	19.67	-241.0	2.012	17.36	-09.83	.1081	0.8618				
2.069	15.35	-238.8	2.055	13.21	-08.09	.1085	0.9245				
0.269	05.28	-267.6	1.960	05.27	-00.22	.0888	0.6530	20	160	000	18

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
0.469	08.29	-128.2	1.745	-06.53	-05.14	.1057	0.5587				
0.669	23.02	-118.0	1.706	-20.56	-11.28	.0933	0.4648				
0.869	25.17	-144.6	1.771	-15.22	-20.95	.0673	0.3696				
1.069	03.95	-102.5	1.902	-03.85	-00.85	.0549	0.3694				
1.269	13.46	-250.4	1.872	12.70	-04.59	.0694	0.4454				
1.469	20.49	-247.2	2.067	19.00	-08.23	.0713	0.6191				
1.669	23.07	-242.3	1.890	20.66	-11.19	.1027	0.6776				
1.869	19.49	-251.9	2.223	18.59	-06.27	.0817	0.9053				
2.069	18.00	-242.2	2.210	16.03	-08.61	.0852	0.9256				
0.269	10.18	-045.0	1.996	-07.23	07.23	.0724	0.5632	23	160	000	18
0.869	26.63	-190.4	1.620	05.17	-26.25	.0818	0.3583				
2.069	22.43	-225.5	1.993	16.40	-16.13	.0923	0.7146				
0.269	00.54	-315.0	1.945	00.38	00.38	.1361	0.9775	08	165	000	18
0.669	05.73	-211.8	1.911	03.02	-04.87	.1434	0.9773				
0.869	06.71	-225.0	1.987	04.75	-04.75	.1318	1.0109				
1.269	08.27	-225.0	1.961	05.87	-05.87	.1277	0.9407				
1.469	07.40	-236.8	2.057	06.20	-04.06	.1148	0.9816				
1.869	04.64	-225.0	2.127	03.28	-03.28	.0914	0.8720				
2.069	00.69	-210.0	2.332	00.34	-00.59	.0787	1.0341				
0.269	00.72	-064.7	1.753	-00.65	00.30	.1392	0.7446	12	165	000	18
0.669	02.51	-238.1	1.874	02.13	-01.32	.1471	0.9473				
0.869	05.59	-235.6	1.808	04.61	-03.16	.1606	0.9341				
1.269	11.01	-211.6	1.845	05.82	-09.40	.1552	0.9556				
1.469	10.47	-242.7	2.205	09.32	-04.84	.1038	1.1187				
1.869	10.68	-241.4	2.071	09.40	-05.15	.1095	0.9565				
2.069	10.76	-232.8	2.014	08.60	-06.55	.1170	0.9353				
0.269	05.46	-225.0	1.856	03.87	-03.87	.1179	0.7383	16	165	000	18
0.669	14.34	-083.5	1.934	-14.25	01.65	.0965	0.7477				
0.869	05.92	-061.5	2.557	-05.20	02.83	.0580	1.0818				
1.269	12.00	-239.9	1.700	10.42	-06.08	.1660	0.8194				
1.469	16.21	-246.5	2.295	14.92	-06.61	.0964	1.1951				
1.869	13.96	-246.3	2.122	12.82	-05.70	.1006	0.9526				
2.069	13.70	-237.4	2.083	11.60	-07.48	.1051	0.9358				
0.269	03.95	-240.1	1.990	03.42	-01.97	.0902	0.6947	20	165	000	18
0.469	06.34	-121.8	1.813	-05.39	-03.35	.1084	0.6355				
0.669	17.74	-090.0	1.838	-17.74	00.00	.0908	0.5527				
0.869	13.35	-115.0	2.275	-12.13	-05.72	.0506	0.6080				
1.069	10.85	-033.7	1.870	-06.07	09.06	.0723	0.4627				
1.269	07.29	-298.8	1.779	06.39	03.52	.0910	0.5063				
1.469	14.53	-250.0	1.924	13.68	-05.06	.0922	0.6413				
1.669	15.35	-234.7	1.605	12.62	-09.01	.1530	0.6552				
1.869	13.32	-230.9	2.058	10.41	-08.49	.1128	0.9658				
2.069	14.77	-241.8	2.407	13.08	-07.10	.0821	1.2133				
0.269	09.00	-029.1	1.935	-04.40	07.87	.0770	0.5443	23	165	000	18
0.669	07.33	-040.7	1.953	-04.79	05.57	.0718	0.5219				
0.869	09.28	-152.2	1.836	-04.35	-08.22	.0694	0.4215				
1.269	06.01	-116.8	1.887	-05.36	-02.71	.0658	0.4324				
1.469	19.46	-206.9	1.967	09.08	-17.49	.0623	0.4628				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_1	θ	ϕ	RUN
1.869	21.41	-238.0	1.427	18.39	-11.73	.1332	0.4400				
2.069	25.01	-225.0	1.717	18.25	-18.25	.1220	0.6179				
0.669	05.27	-200.9	1.903	01.88	-04.92	.1467	0.9879	08	170	000	18
1.269	07.46	-219.9	2.019	04.80	-05.73	.1273	1.0258				
1.869	-00.12	-227.2	2.317	00.00	00.00	.0777	0.9983				
0.669	02.55	-225.0	1.861	01.80	-01.80	.1473	0.9293	12	170	000	18
1.269	09.47	-207.3	1.799	04.37	-08.43	.1629	0.9342				
1.869	10.18	-240.2	1.975	08.85	-05.10	.1097	0.8255				
0.669	10.28	-058.7	2.147	-08.60	05.38	.0957	0.9425	16	170	000	18
1.269	07.60	-241.7	1.734	06.70	-03.61	.1746	0.9072				
1.869	10.80	-245.3	2.395	09.83	-04.55	.0897	1.3011				
0.469	02.52	-114.8	1.822	-02.28	-01.05	.1102	0.6546	20	170	000	18
0.669	13.88	-061.2	1.857	-12.21	06.78	.0954	0.5981				
1.069	18.08	-023.4	2.126	-07.38	16.67	.0767	0.7309				
1.269	04.78	-359.2	1.924	00.06	04.77	.1076	0.7481				
1.669	07.55	-234.4	1.736	06.15	-04.41	.1570	0.8183				
1.869	13.01	-211.5	1.668	06.88	-11.14	.1741	0.8187				
0.669	16.45	-010.9	2.041	-03.19	16.16	.0664	0.5538	23	170	000	18
1.269	09.98	-032.9	2.396	-05.46	08.40	.0582	0.8451				
1.869	08.86	-260.8	1.777	08.74	-01.42	.1174	0.6514				
0.669	04.89	-185.6	1.904	00.47	-04.86	.1458	0.9894	08	175	000	18
1.269	10.09	-180.0	1.858	00.00	-10.09	.1558	0.9788				
1.869	-00.25	-225.0	2.332	00.00	00.00	.0765	1.0058				
0.669	03.35	-207.3	1.833	01.53	-02.97	.1454	0.8788	12	175	000	18
1.269	09.31	-187.2	1.692	01.17	-09.23	.1632	0.7958				
1.869	16.46	-236.3	1.772	13.81	-09.31	.1132	0.6232				
0.669	10.30	-026.6	2.109	-04.65	09.22	.1041	0.9658	16	175	000	18
1.269	04.18	-234.8	1.694	03.41	-02.41	.1888	0.9234				
1.869	10.44	-199.9	1.793	03.58	-09.82	.1616	0.9186				
0.469	00.90	-315.0	1.826	00.63	00.63	.1097	0.6561	20	175	000	18
0.669	13.10	-026.2	1.860	-05.86	11.79	.0967	0.6094				
1.069	20.86	-360.0	2.177	00.00	20.86	.0853	0.8799				
1.269	11.59	-004.1	1.913	-00.84	11.56	.1248	0.8536				
1.669	04.25	-180.0	1.597	00.00	-04.25	.1957	0.8278				
1.869	09.78	-208.4	1.725	04.68	-08.62	.1694	0.8683				
0.669	21.55	000.0	2.052	00.00	21.55	.0614	0.5210	23	175	000	18
1.269	23.34	-013.8	2.097	-05.87	22.73	.0698	0.6358				
1.869	03.21	-329.3	1.741	01.64	02.76	.1441	0.7570				
0.269	00.09	-199.7	2.006	00.03	-00.08	.1210	0.9561	00	180	000	18
0.669	00.84	-360.0	2.100	00.00	00.84	.1083	0.9902				
0.869	01.02	-360.0	2.046	00.00	01.02	.1128	0.9482				
1.269	03.36	-360.0	2.208	00.00	03.36	.0946	1.0245				
1.469	02.91	-360.0	2.129	00.00	02.91	.1028	0.9838				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.869	01.15	-360.0	2.070	00.00	01.15	.1129	0.9849				
2.069	-00.08	-090.0	2.023	00.00	00.00	.1200	0.9731				
0.269	-00.12	-154.3	1.904	00.00	00.00	.1423	0.9590	08	180	000	18
0.669	04.66	-180.0	1.905	00.00	-04.66	.1465	0.9890				
0.869	06.17	-180.0	1.873	00.00	-06.17	.1532	0.9845				
1.269	10.14	-180.0	1.774	00.00	-10.14	.1645	0.9085				
1.469	01.66	-135.0	2.491	-01.17	-01.17	.0760	1.2803				
1.869	-00.37	-210.1	2.328	00.00	00.00	.0769	1.0053				
2.069	00.84	-157.3	2.306	-00.32	-00.77	.0801	1.0112				
0.269	00.08	-315.0	1.652	00.05	00.05	.1386	0.6367	12	180	000	18
0.669	03.57	-180.0	1.891	00.00	-03.57	.1427	0.9430				
0.869	05.87	-180.0	1.860	00.00	-05.87	.1496	0.9426				
1.269	09.73	-177.4	1.833	-00.44	-09.72	.1575	0.9520				
1.469	11.48	-172.9	1.829	-01.43	-11.39	.1612	0.9682				
1.869	-00.57	-180.0	2.553	00.00	00.00	.0663	1.2297				
2.069	00.76	-154.7	2.453	-00.32	-00.68	.0646	1.0261				
0.269	01.41	000.0	1.772	00.00	01.41	.1221	0.6724	16	180	000	18
0.669	10.77	-360.0	1.993	00.00	10.77	.1116	0.8641				
0.869	12.36	-360.0	1.856	00.00	12.36	.1333	0.8344				
1.269	03.04	-180.0	1.638	00.00	-03.04	.1947	0.8757				
1.469	07.95	-180.0	1.769	00.00	-07.95	.1680	0.9209				
1.869	10.73	-180.0	1.788	00.00	-10.73	.1612	0.9097				
2.069	13.60	-180.0	1.691	00.00	-13.60	.1634	0.7950				
0.269	05.31	-270.0	1.841	05.31	00.00	.0980	0.5996	20	180	000	18
0.469	04.83	-254.1	1.829	04.64	-01.32	.1062	0.6376				
0.669	14.54	-360.0	1.785	00.00	14.54	.0976	0.5484				
0.869	29.24	000.0	2.110	00.00	29.24	.0669	0.6214				
1.069	21.12	-332.7	1.920	10.04	18.94	.0812	0.5609				
1.269	22.99	-358.6	1.365	00.59	22.98	.1631	0.4943				
1.469	06.55	-360.0	1.837	00.00	06.55	.1133	0.6891				
1.669	07.25	-121.2	1.664	-06.21	-03.77	.1603	0.7494				
1.869	10.64	-154.3	1.637	-04.65	-09.60	.1785	0.8017				
2.069	10.34	-180.0	1.793	00.00	-10.34	.1543	0.8775				
0.269	07.76	-315.0	1.898	05.46	05.46	.0794	0.5301	23	180	000	18
0.669	25.17	-360.0	1.978	00.00	25.17	.0603	0.4560				
0.869	33.62	-000.6	2.014	-00.39	33.61	.0586	0.4681				
1.269	38.37	-360.0	1.591	00.00	38.37	.1024	0.4292				
2.069	05.02	-180.0	1.826	00.00	-08.02	.1144	0.6838				
0.669	05.14	-160.8	1.891	-01.69	-04.85	.1479	0.9776	08	185	000	18
1.269	12.97	-176.4	1.761	-00.31	-10.96	.1555	0.8418				
1.869	-00.37	-210.1	2.337	00.00	00.00	.0766	1.0150				
0.669	03.22	-149.9	1.905	-01.61	-02.78	.1427	0.9634	12	185	000	18
1.269	08.68	-160.8	1.817	-02.87	-08.20	.1596	0.9411				
1.869	10.31	-180.0	2.043	00.00	-10.31	.1124	0.9401				
0.669	12.79	-331.9	1.816	06.10	11.32	.1142	0.6723	16	185	000	18
1.269	05.27	-121.1	1.561	-04.51	-02.72	.1925	0.7725				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	ϕ	RUN
1.869	13.59	-164.7	1.571	-03.65	-13.12	.1686	0.6867				
0.469	08.01	-241.5	1.775	07.04	-03.84	.1029	0.5693	20	185	000	18
0.669	16.17	-321.4	1.599	10.25	12.76	.1055	0.4476				
1.069	15.12	-315.0	1.826	10.81	10.81	.0668	0.3992				
1.269	14.20	-341.1	1.722	04.68	13.46	.0870	0.4437				
1.669	14.06	-123.7	1.556	-11.76	-07.91	.1515	0.6037				
1.869	19.14	-148.0	1.255	-10.42	-16.40	.2355	0.6140				
0.669	26.85	-350.8	1.830	04.62	26.55	.0625	0.3757	23	185	000	18
1.269	-09.04	-323.9	2.646	00.00	00.00	.0260	0.5560				
1.869	-11.24	-063.8	2.571	00.00	00.00	.0434	0.8270				
0.669	05.56	-151.8	1.867	-02.63	-04.90	.1496	0.9528	08	190	000	18
1.269	08.34	-135.6	1.922	-05.85	-05.97	.1324	0.9180				
1.869	-00.41	-149.4	2.507	00.00	00.00	.0749	1.2932				
0.669	02.50	-135.0	1.886	-01.76	-01.76	.1448	0.9491	12	190	000	18
1.269	10.70	-151.1	1.690	-05.21	-09.39	.1653	0.8038				
1.869	10.15	-132.1	2.059	-07.56	-06.84	.1106	0.9485				
0.669	14.64	-303.3	1.710	12.31	08.16	.1090	0.5463	16	190	000	18
1.269	11.71	-117.0	1.731	-10.46	-05.37	.1295	0.6700				
1.869	13.61	-122.8	2.083	-11.50	-07.47	.1048	0.9337				
0.469	10.49	-239.8	1.727	09.09	-05.32	.1015	0.5220	20	190	000	18
0.669	18.99	-294.5	1.502	17.38	08.12	.1079	0.3971				
1.069	08.85	-270.0	1.849	08.85	00.00	.0527	0.3264				
1.269	10.16	000.0	1.493	00.00	10.16	.1015	0.3687				
1.669	20.05	-123.5	1.628	-16.92	-11.38	.1301	0.5767				
0.669	22.79	-332.5	1.711	10.97	20.43	.0614	0.3083	23	190	000	18
1.269	05.92	-300.9	1.858	05.08	03.04	.0711	0.4465				
1.869	18.68	-135.0	1.241	-13.44	-13.44	.1598	0.4088				
0.469	05.27	-118.9	1.898	-04.61	-02.55	.1423	0.9501	08	195	000	18
0.669	06.59	-135.0	1.870	-04.67	-04.67	.1461	0.9346				
1.069	07.84	-135.0	1.964	-05.56	-05.56	.1313	0.9717				
1.269	08.49	-144.1	1.964	-05.00	-06.89	.1274	0.9429				
1.669	07.84	-125.4	2.006	-06.40	-04.56	.1224	0.9667				
1.869	09.40	-135.0	1.962	-06.67	-06.67	.1293	0.9537				
0.469	01.31	-240.1	1.902	01.13	-00.65	.1363	0.9162	12	195	000	18
0.669	00.31	-180.0	1.791	00.00	-00.31	.1461	0.8276				
1.069	11.56	-135.3	1.787	-08.18	-08.27	.1485	0.8366				
1.269	11.36	-122.8	1.915	-09.58	-06.21	.1235	0.8465				
1.669	11.33	-118.5	2.064	-09.98	-05.46	.1098	0.9495				
1.869	11.27	-126.8	2.033	-09.06	-06.80	.1141	0.9393				
0.469	19.22	-270.0	1.882	19.22	00.00	.1128	0.7355	16	195	000	18
0.669	19.18	-270.0	1.649	19.18	00.00	.1054	0.4819				
1.069	25.20	-045.0	1.792	-18.40	18.40	.0737	0.4183				
1.269	15.94	-115.9	1.663	-14.40	-07.11	.1263	0.5896				
1.669	16.96	-114.4	2.093	-15.52	-07.18	.1031	0.9329				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.869	15.35	-123.6	2.020	-12.87	-08.63	.1116	0.9006				
0.469	12.47	-238.6	1.686	10.68	-06.57	.1023	0.4943	20	195	000	18
0.669	22.23	-265.4	1.638	22.16	-01.87	.0961	0.4325				
1.069	18.01	-180.0	1.711	00.00	-18.01	.0524	0.2626				
1.269	08.89	-104.9	1.745	-08.59	-02.30	.0703	0.3716				
1.669	24.30	-117.3	1.847	-21.86	-11.69	.0971	0.5993				
1.869	26.01	-127.4	1.748	-21.18	-16.50	.1289	0.6842				
0.469	19.19	-225.0	1.765	13.82	-13.82	.0671	0.3656	23	195	000	18
0.669	14.31	-302.9	1.757	12.08	07.88	.0569	0.3060				
1.069	21.70	-150.1	1.922	-11.22	-19.03	.0605	0.4190				
1.269	13.99	-153.8	1.997	-06.27	-12.60	.0690	0.5376				
1.669	35.19	-147.8	1.592	-20.59	-30.82	.1286	0.5399				
1.869	-49.63	-119.7	1.450	00.00	00.00	.0775	0.2647				
0.469	06.87	-101.5	1.821	-06.73	-01.37	.1374	0.8155	08	200	000	18
1.069	08.35	-132.6	1.962	-06.16	-05.67	.1277	0.9415				
1.669	07.99	-122.5	2.010	-06.75	-04.31	.1215	0.9658				
0.469	05.91	-240.4	1.810	05.14	-02.92	.1326	0.7736	12	200	000	18
1.069	15.94	-045.0	1.987	-11.41	11.41	.1069	0.8198				
1.669	12.20	-117.5	2.048	-10.85	-05.70	.1126	0.9496				
0.469	20.98	-223.4	1.930	14.76	-15.56	.1009	0.7083	16	200	000	18
1.069	26.36	-104.1	1.864	-25.66	-06.88	.0693	0.4390				
1.669	17.46	-115.5	2.083	-15.84	-07.71	.1030	0.9176				
0.469	10.78	-236.1	1.718	08.98	-06.06	.1047	0.5314	20	200	000	18
1.069	29.04	-159.0	1.810	-11.25	-27.39	.0626	0.3649				
1.669	24.44	-131.3	1.688	-18.85	-16.69	.1062	0.5146				
0.469	16.41	-261.8	1.784	16.25	-02.40	.0652	0.3653	23	200	000	18
1.069	29.39	-145.2	1.991	-17.82	-24.82	.0628	0.4846				
1.669	32.36	-144.0	1.544	-20.42	-27.14	.1143	0.4475				
0.469	08.29	-114.0	1.770	-07.58	-03.39	.1246	0.6836	08	205	000	18
1.069	07.90	-118.5	2.082	-06.95	-03.78	.1136	1.0101				
1.669	08.28	-120.7	2.005	-07.13	-04.24	.1217	0.9596				
0.469	10.75	-221.8	1.764	07.21	-08.05	.1281	0.6970	12	205	000	18
1.069	17.93	-045.0	1.937	-12.88	12.88	.0997	0.7074				
1.669	12.78	-117.4	2.028	-11.38	-05.95	.1153	0.9421				
0.469	16.41	-219.1	1.927	10.52	-12.87	.0894	0.6244	16	205	000	18
1.069	26.71	-135.0	1.741	-19.58	-19.58	.0970	0.5091				
1.669	17.73	-116.5	2.062	-15.96	-08.11	.1038	0.8949				
0.469	06.52	-213.8	1.770	03.63	-05.42	.1091	0.5987	20	205	000	18
1.069	34.98	-159.5	2.101	-13.76	-33.24	.0746	0.6830				
1.669	26.67	-143.6	1.596	-16.59	-22.01	.1166	0.4929				
0.469	13.17	-235.4	1.800	10.90	-07.56	.0693	0.3979	23	205	000	18
1.069	33.79	-143.4	1.929	-21.75	-28.24	.0742	0.5196				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

γ	ϵ	ϕ_γ	M_1	α_γ	β_γ	$\frac{p_1}{p_{t,e}}$	$\frac{p_{t,1}}{p_{t,e}}$	α_i	θ	β	RUN
1.669	29.55	-140.0	1.654	-20.02	-23.47	.0958	0.4412				
0.469	00.14	-135.0	1.929	-00.09	-00.09	.1364	0.9554	00	210	000	18
0.669	00.38	-080.5	1.968	-00.37	00.06	.1307	0.9730				
1.069	-00.52	-135.0	1.958	00.00	00.00	.1317	0.9657				
1.269	-00.19	-047.0	1.940	00.00	00.00	.1350	0.9629				
1.669	03.45	-312.4	2.173	02.54	02.32	.0988	1.0125				
1.869	03.77	-360.0	2.152	00.00	03.77	.1017	1.0088				
0.469	09.04	-135.0	1.808	-06.41	-06.41	.1213	0.7056	08	210	000	18
0.669	09.01	-119.2	1.969	-07.88	-04.42	.1252	0.9338				
1.069	07.70	-118.1	2.056	-06.80	-03.64	.1149	0.9810				
1.269	08.11	-118.4	2.024	-07.14	-03.87	.1180	0.9582				
1.669	07.91	-119.7	2.016	-06.88	-03.93	.1206	0.9676				
1.869	08.80	-126.2	1.966	-07.12	-05.22	.1279	0.9490				
0.469	13.77	-207.6	1.712	06.47	-12.25	.1257	0.6315	12	210	000	18
0.669	13.83	-199.4	1.667	04.67	-13.07	.0929	0.4363				
1.069	17.35	-108.8	1.833	-16.47	-05.74	.1019	0.6155				
1.269	16.28	-113.4	1.989	-15.00	-06.61	.1120	0.8620				
1.669	12.68	-116.2	2.023	-11.41	-05.67	.1158	0.9397				
1.869	13.57	-122.5	1.968	-11.50	-07.39	.1230	0.9159				
0.469	09.44	-206.1	1.858	04.18	-08.49	.0920	0.5778	16	210	000	18
0.669	25.39	-213.2	1.919	14.56	-21.66	.0953	0.6573				
1.069	24.87	-152.6	1.885	-12.04	-22.36	.1075	0.7040				
1.269	20.98	-180.0	1.752	00.00	-20.98	.1109	0.5922				
1.669	17.97	-117.2	2.036	-16.09	-08.43	.1053	0.8720				
1.869	17.38	-123.2	2.005	-14.67	-09.72	.1099	0.8667				
0.469	05.23	-180.0	1.892	00.00	-05.23	.1084	0.7174	20	210	000	18
0.669	17.90	-195.1	2.021	04.81	-17.32	.0975	0.7881				
1.069	33.28	-157.4	2.127	-14.15	-31.21	.0861	0.8222				
1.269	33.63	-150.2	1.894	-18.29	-29.99	.1032	0.6849				
1.669	29.31	-147.1	1.487	-16.95	-25.23	.1237	0.4455				
1.869	26.88	-135.1	1.638	-19.68	-19.75	.1219	0.5484				
0.469	10.29	-210.6	2.013	05.28	-08.88	.0695	0.5548	23	210	000	18
0.669	15.27	-159.5	2.107	-05.46	-14.34	.0587	0.5431				
1.069	33.66	-144.5	2.003	-21.14	-28.46	.0762	0.5989				
1.269	34.56	-144.1	2.032	-21.99	-29.16	.0823	0.6770				
1.669	27.33	-139.3	1.723	-18.62	-21.39	.0904	0.4619				
1.869	23.87	-135.0	1.660	-17.37	-17.37	.0890	0.4137				
0.469	09.25	-149.0	1.760	-04.79	-07.94	.1204	0.6507	08	215	000	18
1.069	08.27	-116.5	2.039	-07.41	-03.71	.1163	0.9668				
1.669	08.21	-118.3	2.004	-07.24	-03.91	.1210	0.9530				
0.469	14.65	-182.7	1.734	00.70	-14.63	.1207	0.6272	12	215	000	18
1.069	17.15	-127.4	1.756	-13.77	-10.61	.1056	0.5673				
1.669	12.48	-115.8	2.027	-11.26	-05.50	.1142	0.9322				
0.469	05.93	-150.8	1.992	-02.90	-05.18	.0951	0.7348	16	215	000	18
1.069	24.23	-162.3	1.866	-07.79	-23.20	.1148	0.7297				

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA FOR CAL TEST 289-19 $M_o = 2.00$

γ	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,o}}$	$\frac{p_{t,1}}{p_{t,o}}$	α_i	θ	ϕ	RUN
1.669	17.71	-118.3	2.009	-15.70	-08.60	.1058	0.8388				
0.469	08.61	-135.6	1.784	-06.04	-06.17	.1100	0.6166	20	215	000	18
1.069	31.32	-153.8	2.174	-15.03	-28.63	.0857	0.8795				
1.669	24.49	-145.9	1.501	-14.32	-20.66	.1051	0.3863				
0.469	10.89	-193.6	1.907	02.59	-10.59	.0769	0.5210	23	215	000	18
1.069	34.34	-145.5	1.979	-21.15	-29.38	.0838	0.6343				
1.669	26.20	-139.9	1.825	-17.58	-20.62	.0846	0.5050				
0.469	06.04	-180.0	1.707	00.00	-06.04	.1196	0.5965	08	220	000	18
1.069	08.12	-116.1	2.032	-07.30	-03.59	.1167	0.9602				
1.669	08.54	-115.9	2.001	-07.69	-03.75	.1210	0.9481				
0.469	14.86	-154.9	1.649	-06.42	-13.51	.1179	0.5390	12	220	000	18
1.069	14.38	-180.0	1.790	00.00	-14.38	.1058	0.5988				
1.669	12.49	-110.7	2.020	-11.70	-04.47	.1150	0.9283				
0.469	07.98	-135.0	2.000	-05.66	-05.66	.1039	0.8132	16	220	000	18
1.069	23.79	-163.9	1.672	-06.97	-22.95	.1225	0.5795				
1.669	16.24	-119.0	2.008	-14.29	-08.03	.1054	0.8351				
0.469	13.84	-125.3	1.772	-11.36	-08.10	.1078	0.5933	20	220	000	18
1.069	30.02	-150.1	2.059	-16.06	-26.60	.0929	0.7966				
1.669	19.40	-180.0	1.657	00.00	-19.40	.0838	0.3876				
0.469	10.61	-162.7	1.809	-03.18	-10.14	.0798	0.4651	23	220	000	18
1.069	33.64	-144.8	2.009	-20.98	-28.53	.0860	0.6827				
1.669	26.77	-137.3	2.030	-18.88	-20.34	.0760	0.6231				
0.469	04.80	-089.0	1.800	-04.79	00.08	.1158	0.6654	08	225	000	18
1.069	08.22	-109.3	2.017	-07.76	-02.73	.1187	0.9540				
1.669	09.21	-102.5	1.964	-08.99	-02.01	.1268	0.9386				
0.469	15.03	-134.6	1.684	-10.82	-10.67	.1126	0.5427	12	225	000	18
1.069	10.75	-131.1	1.888	-08.14	-07.11	.1055	0.6941				
1.669	10.89	-099.0	2.037	-10.75	-01.72	.1141	0.9458				
0.469	12.24	-131.4	1.934	-09.24	-08.16	.1126	0.7952	16	225	000	18
1.069	22.03	-154.0	1.585	-10.05	-19.98	.1136	0.4724				
1.669	14.89	-114.7	2.040	-13.58	-06.34	.0978	0.8147				
0.469	21.12	-124.5	1.815	-17.65	-12.34	.1037	0.6098	20	225	000	18
1.069	28.09	-142.5	2.016	-18.00	-22.94	.0899	0.7209				
1.669	18.73	-180.0	1.663	00.00	-18.73	.0835	0.3895				
0.469	17.88	-123.9	1.964	-14.99	-10.20	.0751	0.5561	23	225	000	18
1.069	32.66	-142.1	2.027	-21.49	-26.83	.0878	0.7168				
1.669	29.33	-137.7	2.025	-20.71	-22.56	.0810	0.6591				
0.469	-00.40	-239.9	1.905	00.00	00.00	.1389	0.9379	00	240	000	18
1.069	00.17	-215.1	1.934	00.09	-00.13	.1329	0.9383				
1.669	00.24	-209.7	1.912	00.11	-00.20	.1391	0.9497				
0.469	07.23	-114.8	1.729	-06.56	-03.04	.1168	0.6024	08	240	000	18

APPENDIX A (CONTINUED)

TABULATED FLOW INCLINATION, MACH NUMBER, AND PRESSURE RATIO DATA

FOR CAL TEST 289-19 $M_o = 2.00$

y	ϵ	ϕ_f	M_1	α_f	β_f	$\frac{p_1}{p_{t,\infty}}$	$\frac{p_{t,1}}{p_{t,\infty}}$	α_1	θ	β	RUN
1.069	06.20	-092.1	2.027	-06.19	-00.22	.1194	0.9747				
1.669	06.78	-060.0	2.016	-05.87	03.40	.1216	0.9759				
0.469	14.28	-113.8	1.902	-13.10	-05.86	.1090	0.7330	12	240	000	18
1.069	08.45	-114.3	1.848	-07.71	-03.49	.1044	0.6454				
1.669	01.51	-135.0	2.009	-01.06	-01.06	.1091	0.8656				
0.469	19.99	-119.2	2.105	-17.61	-10.06	.0914	0.8422	16	240	000	18
1.069	18.34	-126.6	1.984	-14.90	-11.18	.0906	0.6917				
1.669	15.73	-142.5	1.832	-09.72	-12.59	.0942	0.5685				
0.469	32.28	-128.7	1.875	-26.24	-21.55	.1051	0.6774	20	240	000	18
1.069	26.48	-126.3	2.111	-21.67	-16.43	.0839	0.7806				
1.669	26.47	-130.1	1.990	-20.85	-17.78	.0902	0.6951				
0.469	35.06	-140.6	2.085	-24.01	-28.47	.0947	0.8454	23	240	000	18
1.069	31.31	-124.8	2.177	-26.54	-19.14	.0798	0.8236				
1.669	31.77	-127.5	2.106	-26.16	-20.65	.0840	0.7745				

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15. Supplementary Notes

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Topical Report

16. Abstract

The Bumblebee Program, initiated in 1945 by the U.S. Navy Bureau of Ordinance, was designed to provide a supersonic-guided missile. The Aerodynamic Program included a fundamental research effort in supersonic aerodynamics as well as a design task in developing both vehicles and prototypes of tactical missiles.

A series of four reports were prepared in order to facilitate dissemination of a large amount of fundamental aerodynamic missile data, which has been stored for a number of years at the Applied Physics Laboratory.

This report provides available flow field data which can be used in validating theoretical procedures for computing flow fields around supersonic missiles.

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